



**THE EFFECTS OF CLIMATE EXTREMES ON ILLEGAL MIGRATION OF  
THE GAMBIA'S YOUTHS**

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THE GAMBIA'S YOUTHS**

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MAY 2023

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## **DEDICATION**

To my loveliest and compassionate mother and late foresighted father, who wish to see me exceling in school. I am here today in pursuance of that dream.

I also dedicate this work to the first Director of the WASCAL programme

(The late Dr. Musa Sowe) whose support was immeasurable

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## LIST OF ACRONYMS

BMBF	Bundesministerium für Bildung und Forschung
CRR	Central River Region
EU	European Union
FGD	Focus Group Discussion
GBoS	Gambia Bureau of Statistics
GIS	Geographic Information System
GRCS	Gambia Red Cross Society
IOM	International Organisation for Migration
IPCC	Intergovernmental Panel on Climate Change
KMO	Kaiser Meyer Olkin
LDCs	Least Developed Countries
MK	Mann Kendall
NBR	North Bank Region
NCMM	National Coordination Mechanism on Migration
NGOs	Non-Governmental Organisations
RepGAM	Renewable Energy Potentials of The Gambia
SDGs	Sustainable Development Goals
SPI	Standard Precipitation Index
SPSS	Statistical Package for Social Sciences
URR	Upper River Region
UTG	University of The Gambia
WASCAL	West Africa Science Service Centre on Climate Change and Adapted Land use
WCR	West Coast Region
WMO	World Meteorological Organization
YAIM	Youths Against Irregular Migration
YEP	Youth Enterprise Project

## ABSTRACT

Migration is as old as human existence and it has been a suitable option for residence faced with disasters. The movement of people within the African continent can be traced far back to precolonial era. When people in the western Sudan were deeply engaged in trade with their northern counterparts. However, the irregular/ clandestine/illegal migration of people between Africans and Europeans had predated colonisation of Africans. But this was not made an issue until recently, when mass exodus of African youths to Europe gained public attention both in the print and electronic media. The irregular migration of The Gambia's youths to Europe is well documented in the country's history. These youths are mostly from the rural areas where farming is the predominant economic activity and the source of livelihood. With the advent of climate change and climate variability, farming is likely be impacted so seriously that many more youths relying on rainfed agriculture will be tempted to migrate. Consequently, the study therefore investigates the effects of climate extremes on illegal migration of The Gambia's youths. It specifically: assesses the perception and causes of illegal migration; examine the effects of floods and droughts on illegal migration; identify problems faced by youths during journeys to their destination; identify their coping strategies during the perilous journey; and evaluate measures taken by the government, civil society groups and other organized institutions to address illegal migration of youths. The research employed both qualitative and quantitative research designs were illegal migrants and returnees formed the sample of 105 respondents. These interviewees were selected by snow ball sampling. A second group of interviewees were parents of the illegal migrants that were 10 groups of 8 in the four Regions. Also 12 Key Informants Interviews drawn from institutions dealing with climate change and migration nexus were done. The data was analysed using statistical packages for social sciences (SPSS

Version 20), Micro soft excel (2013) and Arc GIS 10.3 software application. The research established that climate extreme events specifically flood and drought had been pronounced in the four regions under study. Long dry spells are more severe in NBR and CRR than in URR and WCR. This is negatively impacting all farming communities in the regions and it is fast-tracking the migration of the youths. Furthermore, the odds evicting youths from their home to take the perilous journey commonly called the “*Backway*” is worsen by dreadful scenes they encounter. Notwithstanding, the illegal migrants sought numerous strategies earmarked to keep them moving at all cost. Finally, both Government and its development partners like the EU are actively engaged in addressing illegal migration of the youths. But their efforts are thwarted by inadequate understanding of the hybrid of issues surrounding the theme. The uncertainty of climate change phenomenon and limited understanding of climate variability and migration nexus complicated the issues further. Many climate extremes related mobility and mortality are preventable through education, good floodplain management, and early warning systems. These make it a sine qua non to integrate climate change related extremes like floods and drought into the national school curriculum. The findings will further contribute to shape and reform public policies relevant to youth development, and societal resilience to hostile effects of climate change.

**Key words:** youths, climate change, illegal migrants / “*back way*”, drought, flood

## **CHAPTER ONE:**

### **INTRODUCTION**

#### 1.1 Background to the Study

Migration is part of human existence. Migration within and between continents of Africa is a phenomenon that has existed since the dawn of humans (Adepoju, 2008). The definition of migration is a contentious activity due to its multifaceted nature. Starting from the famous quote of Socrates: "I am neither Athenian nor Greek, but a citizen of the world" (Plutarch, 1949). From the quote, it is clear that one is free to move and can settle anywhere. However, human classification of borders on the physical land or creation of geopolitical boundaries made it complicated for one to succumbed to Socrates thought.

According to Kok (1997), "migration" is defined as the crossing of the boundary of a predefined spatial unit by one or more persons involved in a change of residence. The Longman Dictionary of Contemporary English defines the term as that phenomenon "when large numbers of people go to live in another area or country, especially in order to find work" (Longman, 2005). Rosenberg (2020) wrote "the push-pull factors are those that drive people away from a place and draw people to a new location. A combination of push-pull factors helps determine migration or immigration of particular populations from one land to another". It is a term that encompasses a wide variety of movements and situations that involve people of all walks of life and backgrounds (Deirdre et al., 2019). Also, Connell and Conway (2000) stated that migration is a significant pattern of lifestyle, and even a social routine at times. Furthermore, the 2<sup>nd</sup> edition of The Explanatory Dictionary of the Romanian Language (DEX II, 1998), indicated that "migration" is defined as "the mass movement of some tribes or populations from one territory to another, determined by economic, social, political or natural factors". With

all these descriptions, the latter's definition of migration is adopted for the purpose of this study because it highlighted all that the research pursued.

Many people have moved from one place to another, either permanently or temporary, and some are constantly on the move even in recent times. It is sometimes difficult to ascertain whether those moving do so willingly or otherwise. However, in the recent changing climate, many people are forced to relocate due to climate extreme events like floods, droughts, wildfires, windstorms, diseases and pest invasions coupled with poor economies and social unrest like war. Migration (whether temporary or permanent, whether national, or international) has always been a possible coping strategy for people facing environmental changes such as sudden disasters, creeping processes, or cyclical climate conditions (Warner, Hamza, Oliver-Smith, Renaud, & Julca, 2010).

Globally, the number of climate migrants, or individuals relocating temporarily or permanently as a result of changing environmental circumstances, is increasing rapidly (Bryne, 2018a). For instance, Lake Chad, which borders Nigeria, Cameroon, Chad, and the Niger, has shrunk by 95% since 1960. Millions of individuals have seen a detrimental impact on their quality of life as a result of this trend, which has also exacerbated sociopolitical tensions and conflict in the area and increased the likelihood of migration. Permanent migration has also been linked to environmental changes or disasters. According to Clapham (1990), initiatives have been made to move people out of places that frequently experience famines and droughts, such as in Ethiopia in the 1980s (UNCTAD, 2018). Food insecurity brought on by the environmental conflict is increasing in developing nations; in 2016, 108 million people worldwide experienced food insecurity on a crisis-level or above (World economic Forum, 2017). In comparison to 2015, when approximately 80 million people experienced such insecurity, this is a

35% increase. (UNCTAD, 2018). This growing trend is primarily a result of the impacts of climate change on vulnerable communities (communities that currently have little or no alternative means of adapting to such impacts). The 2017 World Economic Forum Report identified extreme weather events, large-scale involuntary migration, and major natural disasters as the top three global risks in terms of likelihood. Each of these risks is directly associated with a changing climate. Through these and other impacts, climate change will directly threaten the livelihoods of hundreds of millions of people over the coming decades and will directly impact the lives of countless others (Bryne, 2018b).

Migration in its broad term has two key factors; referred to as the "Push" and "Pull" which are the basic tenets responsible for would-be migrants to leave one place for another. The push factor refers to the conditions forcing someone to leave his/her residence to relocate to another. This could be caused by environmental problems like flood, drought, and wildfire or socio-political such as war persecution et cetera. The latter is the condition that attracts a migrant to a specific place as his/her destination. It could be due to peace in that place or stability of the chosen destination. Numerous projections indicated that Climate change will have a progressively increasing impact on environmental degradation, and environmentally dependent socio-economic systems with the potential to cause substantial population displacement.

The relationship between climate change and migration has gained public attention in both the media and political discourse as well as the climate activists in the past several years (Bettini 2013). This is reflected in an increasing number of news stories and reports specifically about climate-induced migration and displacement (Climate and Migration Coalition 2015). Although estimates are not available, it is likely a large number of unauthorized Gambians currently reside in Spain, and Italy having arrived covertly by boat or overstayed their visas. These migrants face

treacherous conditions along the way, including unscrupulous smugglers who charge exorbitant fees and often exploit their trust and hopes. Hundreds of migrants, including many Gambians, die each year while attempting to reach Spain by sailing in simple wooden fishing boats (Kebbeh, 2013).

Rigaud et al. (2018) warns that climate change will be a major driver of future internal migration flows in sub-Saharan Africa, South Asia, and Latin America which will provide a difficulty of estimating and predicting the number of environmental migrants. These will also be a catalyst for many emigrants from these regions to Europe as a mean of adaptation for many reasons. Another report by FAO (2016) highlighted that “the largest numbers of potential migrants would be from Africa as this continent is considered most vulnerable to climate change and climate variability due to its geographical characteristics of vast semi-arid areas, high reliance on rain-fed agriculture (only 5% of the cultivated area is under irrigation, compared to the world average of 21%) and low adaptive capacity”. The key concerns in Less Developed Countries (LDCs) will include serious threats to food security and health, considerable economic decline, inundation of coastal areas, and degradation of land and freshwater resources (Reuveny in Polit Geogr, 2007).

The links between climate and human migration are not new (Beniston 2004). For instance, the droughts of the 1930s in the plains of the American Dust Bowl forced hundreds of thousands of migrants towards California and those that struck the Sahel between 1969 and 1974 displaced millions of farmers and nomads towards the cities (Piguet, 2015). Drought is climate-related and according to the World Meteorological Organization (WMO), climate change is projected to increase the frequency, intensity, and duration of droughts, with impacts on many sectors, in a particular food, water and energy. The Sahelian zone including The Gambia is particularly prone to drought.

The Gambia, like many other sub-Saharan African countries is faced with numerous challenges induced by climate change. The country over the years had been battling with droughts that led to a decline of agricultural produce due to low and erratic rainfall. Rainfed crop cultivation is the mainstay of the country's economy and food basket. Recently, flood has been well documented in the country and it further crippled the life support systems of the farming communities. These problems pushed many of the youths<sup>1</sup> to look for other alternatives in adapting to the changing climate. One of the adaptation strategies many of the rural youths are adopting is migration. Because anytime flood and/or drought occur, it causes numerous damages to livelihoods, and at worst cases to lives of domestic animals and humans. Sometimes structures of people like buildings are destroyed seriously making the occupants sleep outdoors or move to other places. This is corroborated by (Baldeh, 2019) who stated that floods in Basse had caused some families' migration to Guinea and other diverse places in The Gambia. Since there is also evidence that severe floods, droughts and increased temperatures have occurred in the past and are likely to recur in the future (Yaffa, 2013). Taking a cue from other studies, anytime such events occur, many people will lose their means of livelihood and use migration as an adaptation measure to curb the effects of extreme climate events.

It is common knowledge that poverty caused by climate change/variability will continue to affect migration flows for the foreseeable future. The Gambia ranks as one of the world's least developed countries in the world and it experiences high poverty rates, with a Human Development Index (HDI) of 0.50 and it is ranked 174 out of 191

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<sup>1</sup> A male or female from the age 15 to 35

countries (Human Development Report, 2023). About half of its population is living below the poverty line (Armitano, 2017).

Since 2014 over 600,000 African migrants have arrived in Italy through the perilous Central Mediterranean route, and nearly 120, 000 arrived in 2017 (Kirwin & Anderson, 2018). As these migrants do not have the legal authority to enter and reside in the destination countries, they are referred to irregular/illegal/ clandestine or “Back Way” migrants, in some countries including The Gambia. Throughout this study, “Illegal migration” will be the chosen word to represent all other synonyms. Notwithstanding, these migrants from The Gambia are regularly embarking on perilous journeys through the deserts and across the Mediterranean Sea to Europe. Although the present media focus on the subject, the amount of systematic research on the environment and migration remains quite limited.

## 1.2 Problem Statement

Even though the print and electronic media continue reporting and showing horrible pictures of youths perishing at high seas, coupled with massive sensitization on the negative impacts of illegal migration, there are still many more youths leaving for such perilous journeys, and others are planning how to embark on the journeys each other day. Migration has always been part of life in The Gambia. However, from the 1980s, the phenomenon took on a new height (Armitano, 2017). Economic corrosion, high level of unemployment and droughts have fueled the exodus of Gambians abroad both regularly and irregularly. The flows of migrants embarking on the irregular journey (commonly called illegal migration) are hard to quantify due to the nature of this form of migration.

Even though the country is the smallest in Africa and its population is the least among the top Mediterranean arrival nationalities. In 2016, Italy experienced the arrival

of 11,929 Gambians. This represented 6.6 per cent of nationalities landing on the Italian shores, and rank amongst the top nationalities, along with Nigerians, Eritreans, Guineans and Ivoirians. As of June 2020, there were 22,840 Gambians in Italy, 19,849 in Spain and 15,535 in Germany. Most of these numbers arrived through the irregular route and are irregular migrants. In 2016, the number of Gambians arriving in the Italian coasts hit 8,454 (representing an increase of 41 per cent compared to 2015). Similarly, in Spain, Gambians also rank amongst the top nationalities of arrivals (8 per cent) with a total of 5,499 (IOM, 2020).

That said, scientific research on the scope and cause of illegal migration of Gambian youths to Europe, in particular, is very sparse, even though illegal migration recur quite frequently. It is imperative that migration is an adaptation measure to extreme climate events. But the rising number of illegal migrants perishing at sea is alarming. Therefore, how illegal migration of the country's youths is being induced by climate extremes such as floods and droughts is anybody's guess. Although terms such as "environmental migrants" have been growingly used over the last two decades, the number of in-depth studies remains surprisingly low (Simonelli, 2018).

### 1.3 Purpose of the Study

The overarching purpose of this study is to investigate why many Gambia's youths take the perilous journey to reach Europe, even after having an insight of the risk involved. And also, to gauge how is illegal migration associated with climate extreme events such as flood and drought. The understanding of these will help in the designing of policy-relevant insights to address illegal migration of Gambia's youths. These could be related to climate extreme events such as flood, and drought and how these events affect youths' socioeconomic development, nutrition, basic healthcare, personal safety

and educational attainment. The research is open to other impacts that might not be so obvious, and have not been previously documented.

#### 1.4 Research questions

Research questions are essential to this research design because without them, it would be difficult to determine the research methodology and procedures for collecting data. Goetz and LeCompte (1984) argue that “specification of the questions investigated communicates a succinct summary of what the researcher intended to do or actually accomplished in the study. Hence, they constitute openings to the researcher’s field of study, and assist the researcher to stay focused in the research process. Furthermore, Clough & Nutbrown (2002) as cited in Jammeh, (2012) stated that, “the careful formulation of research questions is key to the realization of a successful research study, however large or small”. Moreover, these authors highlight the importance of formulating and refining research questions at the early stage of a research act. Consequently, to effectively address the objectives, the following questions directed the responses relevant to the attainment of the objectives.

1. What are the perceptions and causes of youths’ migration in the study area?
2. What is the relationship between Climate extremes (floods and droughts) and the illegal migration of youths in the study area?
3. What were the problems faced by youths attempting to migrate illegally?
4. What coping strategies do illegal migrant youths take to help them adapt to the problems they encounter?
5. What measures if any, have government, civil society groups, and other institutions taken to address the illegal migration of youths?

### 1.5 Aim and Objectives

The main thrust of the research is to examine the effects of climate extremes (floods and droughts) on illegal migration of The Gambia's youths in the study area, to shape and reform public policies relevant to their development and societal resilience to adverse weather and climate effects.

The specific objectives are to:

1. Assesses the perception and causes of migration in the study area
2. Examines the relationship between climate extremes (Floods and droughts) and illegal migration
3. Identify problems faced by youths during journeys to their destination.
4. Identifies the coping strategies by youths during their perilous journey.
5. Evaluates measures taken by the government, civil society groups and other organized institutions to address illegal migration of Youths.

### 1.6 Scope of the Study

The research was conducted in four (4) regions (North Bank, Central River, Upper River and West Coast Regions) of The Gambia. These regions are more prone to the variables under study (Flood and Drought). The West Coast Region is the wettest among all regions in the country and it is a flood prone zone with Basse in URR. Drought is more pronounced in NBR and CRR North, both lying within the Sahel agro-ecological zone. The study covers from 1980 to 2020 which is enough to gauge the change of climate for any region or area since it is more than thirty (30) years. It is a common knowledge that 30 years is the bench mark for climate change of any place. The Intergovernmental Panel of Climate Change (IPCC) which is the scientific body of the UNFCCC and many other scientific institutions had confirmed this.

### 1.7 Significance of the study

This study is significant because it is the first of its kind in the history of this country, where intensive research in this area exposes the relationship between irregular migration and climate change. Thus, it will serve as a library for future studies of this type, primarily when published in frontline scientific journals. It will further help The Gambia government, through various ministries like youths, agriculture, foreign affairs, education, environment, and climate change, develop relevant policies to address the country's youths' problems. These will help youths who are the cream of Gambian society understand the complex relationship between the two main variables discussed and how to adapt to the changing climate for their development appropriately.

## **CHAPTER TWO:**

### **LITERATURE REVIEW**

Migration is not a new phenomenon in this world from the antiquity people are found to move from one place to another. They migrate sometimes in search of better opportunities when they see some of their needs and desires are not adequately fulfilled in the present location. According to (World economic Forum, 2017) migrants make up more than 1 billion people, or one-seventh of the world's population . Some of these migrants move within the same national boundary, from Rural to Urban or on the reverse. Sometimes it is rural to rural or urban to urban. These forms of migrations are generally referred to as internal migration. On the other hand, a migrant cross-national boundary to a new country within the same continent. Or better still, he/she move into a new country in another continent. Anytime a migrant move to another country, it becomes international migration. It is important to note that migration to a new country requires certain protocols including passport or/and visa. If one fails to fulfil such protocols, he/she becomes illegal migrant.

#### 2.1 Conceptual review

The concept illegal migration refers to the displacement of people across national borders in a way that violates the migration laws of the destination country. Hence, this explains what illegal migrants are. Similarly, IOM defined an irregular migrant as “someone who, owing to illegal entry or the expiry of his or her visa, lacks legal status in a transit or host country” (Armitano, 2017). The expression applies to migrants who infringe a country's admission rules and any other person not authorized to remain in the host country (also called clandestine / illegal / undocumented migrant or migrant in an irregular situation). Subsequently, in this project, illegal migration is chosen as the nomenclature of preference referring to the clandestine, irregular or undocumented

migrants. Another significant variable investigated in this research is climate extreme events (flood and drought). These two specific events are considered to be a catalyst for the displacement of the youths from their origin to destination as areas.

Several people illegally migrate for various reasons. For instance, Singh & Rangi (2020) reported that “a large number of Bangladesh had left their country for economic reasons in search of employment and better chances of livelihood in India. Natural calamities like flood, cyclone, and drought are the yearly phenomena in Bangladesh. Every year each of these events sometimes all together inflicts huge damage to the life's properties and the economy of the country. These natural causes make a ground for illegal migration from Bangladesh. According to the official record indicated in Singh & Rangi (2020), between 18 to 20 million people are displaced by floods in Bangladesh every year. Since they cannot afford this calamity every year, they migrate to some safer place like India, where they can get comparatively stable conditions of living and food security. Thus, the causes of illegal migration as indicated by the report are economic backwardness, unemployment, natural calamities and exploitation of minorities by the government of Bangladesh.

The world has recently experienced numerous instances of extreme weather, including cyclones in the North Atlantic, hurricanes with tremendous winds in the Caribbean and North America, floods in South Asia, and severe droughts in Eastern Africa that have resulted in famines. Those instances of extreme weather are probably caused by climate change., defined in the United Nations Framework Convention on Climate Change as “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere” (United Nations, 1992), having detrimental effects on the chances for world peace and long-term development in many emerging nations. For instance, Lake Chad has shrunk by 95%

since 1960 (Pearson, 2023). Millions of people were influenced by this trend inducing sociopolitical tensions and conflicts pushing many to migrate.

Some scholars argued that climate change has caused the displacement of whole societies and the subsequent fall of empires (Magnan et al. 2016). Climate change corrodes the resilience of societies, modifying not only the number of migrants but the characteristics of pre-existing forms of migration as well. Rural resource-based livelihoods are the most directly affected (Gemenne & Blocher, 2017) as cited in Obokata et al. (2014). People in vulnerable environments are highly exposed, for example, in mountain (Afifi et al. 2014; Milan et al. 2015), arid and semi-arid regions or island communities (IPCC 2007, 2014). For instance, in 2019, erratic rainfall, followed by severe droughts, caused significant crop and livestock production shortfalls, putting approximately 2.2 million people at risk of starvation (Gemenne, Zickgraf, Hut, & Betancourt, 2021) escalating tensions and driving more people to migrate and leave their homes.

Migration trends in Africa do not occur randomly. Instead, they are part of larger global processes that also have an impact on the continent. Many African migrants are motivated by problems including conflict, poor economies, political unrest, environmental degradation, and climate change. Some of these issues are compounded and complicated, for instance, climate change alone could be associated with environmental degradation, poor economies of a country and even conflicts as seen between herders and crop growers in many parts of West Africa.

According to the United Nations Conference on Trade and Development (UNCTAD, 2018) “Environmental changes or disasters have also been associated with permanent migration”. It further quoted (Clapham, 1990) stating that, there have been attempts to relocate populations from areas that are chronically affected by droughts and

famines, such as in Ethiopia in the 1980s. Hence, climate and conflict-induced food insecurity in developing countries are on the rise. It has been reported in 2016 that 108 million people globally faced food insecurity which led to a serious crisis (World Economic Forum, 2017).

Climate change is anticipated to exacerbate environmental factors that cause migration because it is linked to an increase in the frequency and intensity of disasters. For instance, Barrios et al. (2006) and Marchiori et al. (2012) believe that changes in Sub-Saharan Africa's rainfall patterns or temperature anomalies are significant variables influencing rural-urban migration. Moreover, this has even worsened recently as many rural migrants are not only going to urban centers but crossing international boundaries as illegal migrants.

According to Martin et al., (2018) in the International Organization for Migration (IOM) report of 2018:

*The impact of droughts is evident in all regions in Africa. Floods are also an emergency event that affects each region; the population share affected is 2 per cent or less. Extreme temperatures have a greater impact in Western Africa, with 13 per cent of the population affected, and windstorms have affected 4 per cent of the population in Southern Africa and 3 per cent in Eastern Africa. Mediterranean region in 2015 recorded high number of migrants from sub-Saharan Africa, and 42 per cent of over 1,500 fatalities (IOM, 2017b). Similarly, in 2014–2016, an estimated 3,800 migrants died travelling in Africa and data for the first half of 2017 shows that Northern Africa had 225 recorded deaths (IOM, 2017b). Most incidents occurred along routes from Western Africa and the Horn of Africa towards Egypt and Libya.*

The report further noted that human trafficking is also on the increase. This is in tandem with what had been reported in various News outlets in The Gambia and many other international news like the British Broadcasting Cooperation (BBC) and Cable News Network (CNN) among others.

## 2.2 Theoretical review

In term of the research's theoretical framework, many theories exist to study the reasons and implications of migration. One of which is the Harris Todaro's model Rural – Urban Migration that considered economic gains as the main reason for migration. The key hypothesis of Harris and Todaro's model is that economic incentives, earnings differentials, and the probability of getting a job at the destination have influence on the migration decision (Harris and Todaro, 1970). However, two conceptual frameworks (Lee's and Len's) models informed this study. The Lee's theory of migration (Lee 1966) and the Lens model of decision-making research (Hammond 1955; Brunswik 1956), inspired our examination of the effects of climate extreme events on illegal migration of The Gambia's youths. Though these two models are old, they are still relevant and guiding many recent studies related to migration. This is because firstly, Lee's theory of migration is a push – pull model of migration in which an individual's decision to migrate is affected by the positives and negatives of their current home (origin) versus their potential destination, potential intervening obstacles to migration (such as a difficult journey or strict border regulations), and personal factors – for example, labor and skills – (Lee 1966). The model further promotes the idea that intervening hurdles can prevent migration to certain places, whereas push and pull forces might encourage migration from an old area to a new one. Explicitly, the concept of push and pull factors, have been implicitly adopted in other conceptual models of climate change migration (Black et al. 2011). Secondly, the Lens model of decision-making is a framework that

compares an individual's use of decision cues to their environmental validity (Hammond 1955; Brunswik 1956). Thus, a decision cue may weigh heavily in an individual's decision process psychologically, but that decision cue may be of little importance to the decision process when viewed by policy-makers or scientists from an 'objective' quantitative scientific perspective (Whitley et al., 2018). Consequently, a potential migrant may be highly attracted to job opportunity in a destination country, whereas a politician would consider it less significant since the job availability may not correspond with economic viability.

We can infer that Lee's theory of intervening obstacles provides a thorough and full account of numerous elements of migration, such as migration volume, migration streams and migrant characteristics. Lee accommodates practically all facets of the migration process and attempts to explain them coherently. Lee's theory, while an admirable intellectual undertaking, lacks objectivity. As a result, applying this theory to policy design becomes time-consuming. For example, the concept of region and population variety is abstract and ambiguous. The lens model of decision making is the acronym of six (6) particular activities needed in the decision-making process that is to: define the problem; establish the criteria; consider all the alternatives; identify the best alternative; develop and implement a plan of action; and evaluate and monitor the solution and feedback when necessary. The 'decide' model is meant to serve as a resource for health care managers when applying the critical components of decision making, and it allows managers to develop their decision-making skills, resulting in more successful decisions (Guo, 2008). Thought this model too is important to the work but it is not a perfect fit for the study because the migrants cannot be followed and closely studied like patients in a health facility that could be closely monitored by health

managers. The clandestine nature of the illegal migrants cannot be aptly studied to determine the decision cue responsible for the decide.

Cognizant of the deficit of these two models, this study adopted the “Mental models’ technique” to investigate the impacts of climate extremes on illegal migration of the Gambia’s youths. The mental models are graphical representations of how people know, perceive, make decisions, and construct behavior in a variety of environments (Gentner 1983). They go beyond ‘imageries,’ however, by providing concepts that are ‘manipulatable,’ will enable people to predict system states via mental manipulation of model parameters (Cannon-Bowers, Salas, and Converse, 1993).

### 2.3 Existing Gap in Literature

Evidence continues to emerge suggesting that climate variability and change shapes migration patterns (Mueller et al. 2014). Adverse climate variability and change will continue to increase international migration from rural areas (Nawrotzki, Hunter, Runfola, & Riosmena, 2015). However, most existing research focuses exclusively on rural areas and their results show that adverse climate variability and change drive international outmigration only from these areas. Also, the studies find evidence that the influence of climate change on migration operates primarily through employment in the agricultural sector (Nawrotzki et al., 2015).

There is growing consensus among scholars that migration itself serves as part of the positive adaptation strategies adopted in the context of environmental and climatic change (Bardsley and Hugo 2010; and (Black et al. 2011). In Tuvalu, a research by Shen and Gemenne (2011) attempts to understand the interrelationships between livelihoods, environmental change and migration in the context of the citizens’ migration to New Zealand. In view of the foregoing, there have been many studies conducted in the past two decades on climate change – migration nexus. However, these have been centered

in America and Asia. The majority of focus in the climate-migration nexus has been on people who are viewed or expected to move as a result of climate change. Less research has been done on the effects of climate change on persons who have already been moved due to conflict or other shocks (Huckstep, Clemens, & Huckstep, 2023). The few that took place in Africa were based on surveys that specifically identified poor economies as a catalyst for irregular migration but not deeply investigating the root cause of such economies other than poor governance.

This study has come to fill that gap especially in The Gambia that had experienced few researches on the subject. Recent reports also indicated that the country is being among top countries with irregular migrants arriving in Italy. Nonetheless, a study on this subject is virtually non-existence in the country apart from few surveys conducted on returnees by IOM. In fact, those surveys cover only a small sample of returnees to find out their immediate needs required for reintegration into their families and society in general. For example, a working paper presented by Fall (2020) is among the few short surveys conducted on the issue of irregular migrants in The Gambia. Another paper by Conrad Suso (2019), explores the ambitions and capabilities of Gambians who embark on irregular migration, or the so-called ‘backway’. These do not probe into the root cause of embarking on such perilous journeys and what could be done to avert them in the future. Hence, the few surveys conducted in the country are inadequate in nature given the complex scenario of climate change – migration nexus. Consequently, a study of this type in a country that is grappling with adverse climate extremes and high number of irregular migrants perishing along the ‘back way’ is both timely and appropriate.

## 2.4 Theoretical Framework

The theoretical framework of this research as made known in the foregoing sections, suggests relationships between concepts, and discusses relevant theories as stated in the conceptual and theoretical review. It further presented the structure of the research from the formulation of problem statement, research questions, objectives, the methodology of data collection and analysis for appropriate report writing. The main theory that guided this study is anchored on the theoretical foundation of the mental models.

The theoretical foundations of mental models are found in the cognitive sciences and the examination of how humans make sense of their environment (Craik 1968). As rightly indicated by Whitley et al., (2018) there has been growing use of such models to develop a greater understanding of complex systems that feature multiple stakeholders, particularly systems that include interactions between individuals and potentially risky hazards (such as droughts, floods and wildfires etc.). The first two are the main climate extremes events under study in this research. Examples of such mental model work can largely be found in the context of the natural environment (Zaksek and Arvai 2004). Classically, a mental model represents the collective behavior and experiences of a group of people regarding the same risk or phenomenon. The main source of data for mental models are in-depth, open-ended interviews of individuals that either have experienced or could potentially experience the phenomenon being examined (Whitley et al., 2018). Therefore, it is more than apt to adopt this model since, the sample for this work are individual migrants and their parents or household heads who had the experience of illegal migration and in-depth interviews are used to elicit the necessary data. Unlike other studies that espoused this model, where investigators follow only the migrants, this study goes further to engage Key Informants (such as Migration agents

and officials of destination countries) who had interacted with the sampled population and can add impetus to the data garnered from the respondents.

## **CHAPTER THREE:**

### **METHODOLOGY**

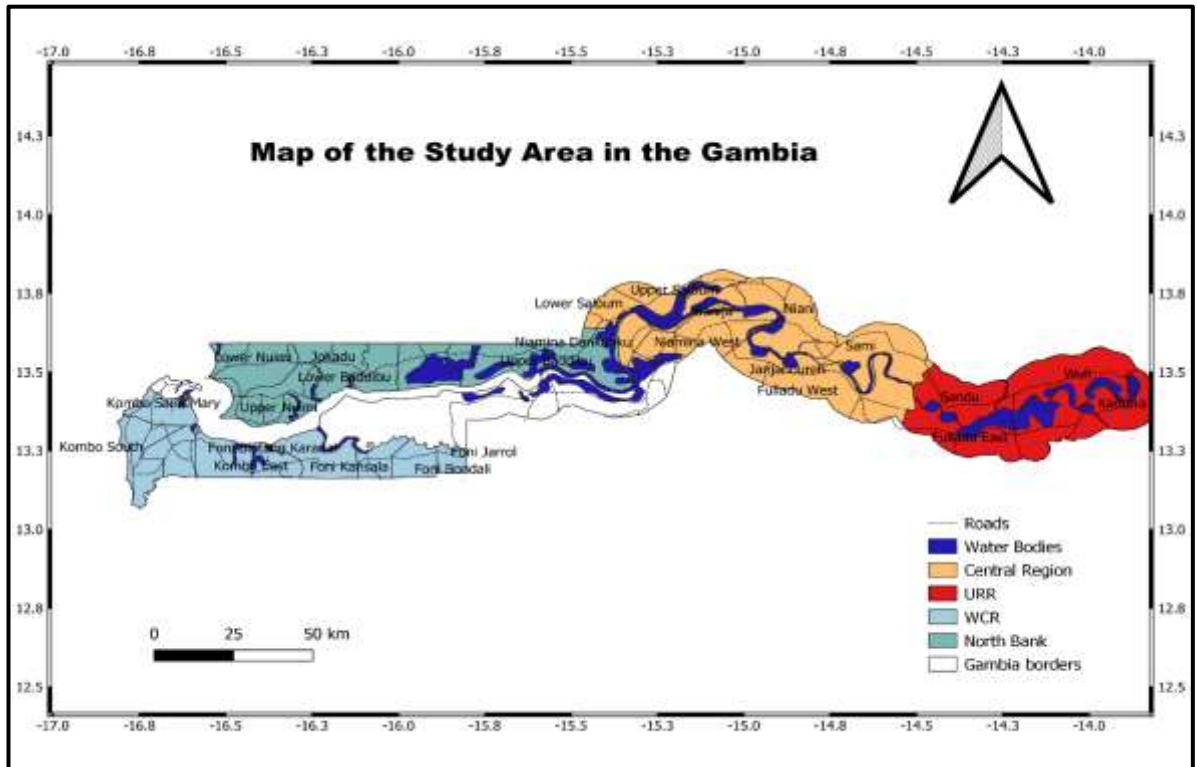
#### **3.1 Research Design**

An appropriate and well-designed research is a prerequisite for any good study. Given the nature of this work, a mixed method design is adopted. Mixed methods research represents more of an approach to examining a research problem than a method. It focuses on research problems that require an examination of real-life contextual understandings, multi-level perspectives, and cultural influences. Tashakkori and Creswell (2007) argue that the design encompasses more than simply combining qualitative and quantitative methods but, rather, reflects a new "third way" epistemological paradigm that occupies the conceptual space between positivism and interpretivism. The study relied heavily on field data which was collected using standard data and information gathering techniques. Both primary and secondary data was sorted as appropriate. The research is organized around four (4) integrated themes as follows: study area; sampling technique; types of data; and data analysis.

#### **3.2 Study Area**

The study was conducted in (4) regions of The Gambia (Central River Region, Upper River Region, West Coast Region, and North Bank Region). According to Jaiteh and Sarr (2003), The Gambia has two (2) seasons: a wet and a dry one of June to October and November to May respectively. Average temperatures range from 18 - 30°C during the dry season and 23 - 33°C during the wet season (GoTG, 2003).

The farmers whom the research target mainly hailed from these regions of the country. Moreover, the CRR and NBR are the most affected in terms of drought in the country's history. Whereas URR and WCR are more prone to flooding.



**Figure 3.1 Study Area**  
**Source: Author (2023)**

The total population of the study area is 1,386,692 (GBoS, 2013). The Central River Region (CRR) is the largest region in the country in terms of land size (Approximately 2,894.25 Square kilometers). It shares a common boundary with NBR in the northern part of the river Gambia. Central River Region covers both the north and south banks of the river whereas, North Bank Region covers only the northern part of the river.

The North Bank Region, occupies the western one-third of the north bank of The Gambia from Barra to the border with Lower Saloum in Central River, with Senegal's Kaolack and Fatick regions to the north. The Upper Baddibu is the largest and most populous of the 6 districts in the Region. The headquarters is Kerewan although Farafenni the most populous and the economic capital of the region. The North Bank Region, usually register between 750 and 950 millimetres of rainfall annually. It is the region of The Gambia, which is most vulnerable to drought due to low rainfall and it is

erratic in nature (Yaffa, 2013). The region also has the least vegetative cover compared to the rest of the country (Gibba, 2002). It is also the country's region with the highest number of out migrants, seven thousand two hundred and forty-one (7,241) followed by Central River Region with 5,594 (GBOS, 2013).

Central River Region with annual rainfall between 800 and 1000 millimeters is most notable for its livestock and rice lands. With extensive freshwater floodplains on either side of the river, the region is an ideal place for livestock production and irrigation farming. With a majority Fula population, a group synonymous to cattle ownership, it is estimated that over 50% of the country's cattle live in Central River. In addition to rice and livestock production, Central River Region is second only North Bank Region in groundnut production” (Jaiteh, and Sarr, 2003).

West Coast and Upper River Regions are situated in the western and eastern parts of the country respectively. These two regions registered the highest number of floods both riverine flood and flash flood are pronounced in URR and WCR respectively. The wettest region of the country is WCR with an annual rainfall of between 1000 and 1200 millimeters. The URR in the extreme end of the eastern part of The Gambia is synonymous to riverine flooding especially the commercial capital of Basse. Baldeh (2019) cited (Jaiteh & Sarr, 2011) as saying the annual mean rainfall of URR is approximately 876 millimeters. For instance, in 2010, flood heavily hit areas include West Coast Region and the Greater Banjul areas. On July 30<sup>th</sup> and 31<sup>st</sup> 2022, both WCR and URR were among the areas that witnessed flash flooding being the worst flood recorded in the country over 34 years ago, as reported by the country's Department of Meteorological Services.

The National Disaster Management Agency (NDMA) reported as at September 22, 2010 at least 26,000 people were affected by floods with over 7, 000 displaced –

living in neighboring houses and schools. Significant loss of livelihoods has been estimated, particularly for small traders and farmers whose goods have been destroyed and whose livestock were lost. There are also reports indicating that rice fields were submerged. All these were as a result of severe floods that hit the country particularly in West Coast Region. The country's assessment team from the NDMA figures demonstrate that the highest number of displaced persons is found in KMC (1,413), WCR (1,134), and CRR (1,079) (Government of The Gambia, 2010). Basse in URR had registered five (5) seasonal floods between 2010 and 2017. These floods had displaced about 2900 (95 of whom are children) and it led to the death of 8 residents (Baldeh, 2019). Recently, the 30<sup>th</sup> and 31<sup>st</sup> July 2022 flash floods led to the loss of 11 lives and over 5400 displaced persons among whom are children and pregnant women in the country.

### 3.3 Sampling

The study investigated the effects of drought and flood on illegal migration of youths, therefore, communities involved in farming are specifically selected for the sample. Meteorological reports show that North Bank and Central River Regions are most vulnerable to drought induced by climate change and climate variability among all regions of the country. The inhabitants are generally agriculturists whose socioeconomic activities rely squarely on crop production and animal rearing. The URR and WCR are the wettest and more prone to floods. This condition is negatively impacting agricultural activities in these areas. Reports from the media and Gambia Bureau of Statistics also indicated that many illegal youths' migrants hail from these regions. Therefore, the study was more focused in these regions. In each region, villages with illegal migrants who attempted reaching Europe or reached were sampled after a pilot study. Table 3.1 showed the various methods used and their purposes in the study.

**Table 3.1.** The methods used in data collection and purpose

<b>S/N</b>	<b>Method</b>	<b>Purpose</b>
1	<b>Snowball sampling</b>	Identify respondents (Illegal youth migrants in Europe, North Africa and returnees) that made up the sample size
2	<b>Purposive and proportional sampling</b>	a. Selection of individual household heads whose children had taken the perilous journey to make up the 10 Focus Group Discussions (FGDs) b. Choose the experts that were interviewed for the Key Informant Interviews (KIIs)
3	<b>Secondary data collection</b>	a. Compilation of precipitation and temperature data of the 7 weather stations in the study area for SPI, trend and regression analysis. b. GIS for land use and land change mapping of the study extent

### 3.3.1 Snowball Sampling

The snowball sampling technique was adopted to identify respondents. The technique is used in dealing with respondents that are not readily available and known. The researcher was able to trace many respondents from the same category after getting

one who was able to give details of others. These people were traced one by one through telephone calls and direct visits until a reasonable number of one hundred and five (105) samples was realized. Since this was a qualitative survey, it was difficult to determine a suitable sample size for the research. Like many other qualitative studies, researchers are faced with the same problem but most argue that, an average sample size of 20 is accepted or if the researcher reaches a theoretical saturation. Furthermore, Baker and Edwards (2012); Guest, Bunce and Johnson (2005); and Mason (2010) argued that factors such as heterogeneity of the studied population, the scope of the study and the adopted methods and their application (Example the length of the interview) are believed to have a central role in achieving this. After interviewing a total of 105 respondents, the responses received were not giving anything new. Therefore, the study had reached saturation and interviews were terminated.

### 3.3.2: Purposive sampling

This sampling was used to select individual household heads and groups to be interviewed as well as those who were given the questionnaires. Parents and household heads of youth migrants were selected from each region based on the communities with highest number of returnees or illegal migrants. There were two Focus Group Discussions in each of the following regions (Westcoast and Upper River), while three FGDs were conducted in both North Bank and Central River Regions making a total of ten (10) FGDs. A cross-sectional procedure where information was collected from a set of cases once without any follow up (Alexander et al., 2015) was adopted in the data collection from each FGD. These amounted to a total of 80 participants out of which 25 are females and the rest males.

### 3.4 Types of Data

Both primary and secondary data was collected for this study. The secondary data (temperature and precipitation) was obtained from the meteorology department that covers the period 1980 to 2020. The primary data was collected from survey of illegal migrants, FGDs and KIIs.

#### 3.4.1 Climate data

Rainfall and temperature data for the 7 weather stations were collected from the Department of Water Resources and analyzed to determine the existence of climate variability and change. These two data variables are significant in the study, hence the period covered is from 1980 to 2020. The normal distribution of the data variables was studied as well as the maximum, minimum and mean of the variables mentioned was determined. The number of wet and dry days and duration of dry spells was calculated using Standard Precipitation Index (SPI) to establish the existence of climate variability.

Consequently, Mann Kendall (MK) test being a statistical test widely used for the analysis of trend in climatologic (Mavromatis and Stathis, 2011) and in hydrologic time series (Yue and Wang, 2004) is adopted for this study. Hirsch, Slack and Smith (1982) specify that the MK test is best viewed as an exploratory analysis and is most suitably used to distinguish stations where changes are significant or of large degree and to quantify these findings. Furthermore, the MK statistical test (Mann, 1945 and Kendall, 1975), a rank-based non-parametric method, has been widely used for detecting trends in hydrometeorological time series such as groundwater (Helsel and Hirsch, 1992), water quality (Burn *et al.*, 2012), streamflow (Serinaldi *et al.*, 2018), lake level (Chebana *et al.*, 2017), temperature, and precipitation (Wang S. *et al.*, 2019). A non-parametric test is taken into consideration over the parametric one since it can avoid the tricky stirred by data skewness (Smith, 2000). Therefore, Man-Kendall test is agreed to

be a preference for many scientists when various stations are tested in a single study (Hirsch *et al.*, 1991).

There is a double advantage of using this test. One, it is a non-parametric test and does not require the data to be normally distributed. Two, the test has low compassion to abrupt breaks due to inhomogeneous time series (Tabari *et al.*, 2011). According to this test, the null hypothesis H0 assumes that there is no trend (the data is independent and randomly ordered) and this is tested against the alternative hypothesis H1, which assumes that there is a trend as stated by Tabari *et. al.*, (2011) as cited in (Karmeshu, 2012).

According to Drapela and Drapelova, (2011) while computing the Mann-Kendall test, the time series of n data points is divided into two subsets,  $T_i$  and  $T_j$ , with  $i = 1, 2, 3, \dots, n-1$  and  $j = i+1, i+2, i+3, \dots, n$ . The values of the data are assessed as an ordered time series. All following data values are compared to each individual data value. The statistic S is increased by one if a data value from a later time period is higher than a data value from an earlier time period. In contrast, S is reduced by one if a data value sampled from a later time period is lower than a data value collected from an earlier time period. The final value of S is the sum of all such increases and decreases.

The Mann-Kendall “S” Statistic is computed as follows

$$S = \sum_{i=1}^{n-1} \sum_{j=i+1}^n \text{sign}(T_j - T_i)$$

$$\text{Sign}(T_j - T_i) = \begin{cases} 1 & \text{if } T_j - T_i > 0 \\ 0 & \text{if } T_j - T_i = 0 \\ -1 & \text{if } T_j - T_i < 0 \end{cases}$$

where  $T_j$  and  $T_i$  are the annual values in years j and i,  $j > i$ , respectively. [10]

The research therefore, adopted Statistical analysis of rainfall, identification of tendencies using MK test, estimation of magnitude using Sen's slope estimator, finally trend results were compared with regression analysis.

Secondary data was also sought from reputable scientific papers. Archived and on-line copies of relevant materials on Mann-Kendall test to guide in the analysis process. Papers on Climate change – migration nexus published by front-line organizations, newspaper articles, and journals published by reputable institutions were also consulted.

#### 3.4.2 Questionnaires used for the survey

Both qualitative and quantitative questionnaires (See appendix 1) had been designed, developed and administered. Some are open-ended whilst others are close-ended to collect the targeted data. Questionnaires were pretested with fifteen youth migrants before being administered to the selected sampled population from the study area. The necessary adjustments were made before finalizing them. They were inputted into a software (Ona.oi), where the data is collected using tablets. Research Assistants were trained on how to use these tablets to administer the questionnaires and help in the data collection. Four research assistants were trained successfully and they actively took part in the data collection for 20 days each. This commenced on the 29<sup>th</sup> June 2021. These assistants were collecting data from illegal migrant returnees in The Gambia. The lead researcher also interviewed 10 illegal migrants' residents in Italy and Germany. These were included because one returnee from Italy was able to link the researcher with others in these two countries who accepted to be interviewed through WhatsApp.

#### 3.4.3 Interview checklist for Focus Group Discussion

A total of ten (10) Focused Group Discussions (FGDs) were conducted in the 4 regions. Three (3) FGDs in CRR and NBR each whereas 2 for URR and WCR. Out of

the ten (10) FGDs, there were two (2) female groups, two (3) mixed groups and the rest were male groups to avoid the influence of response by either side. The holding of the discussions separately enabled the comparison by gender. The interview checklist in appendix 2 was used to elicit data from the FGD participants. The group discussion was facilitated by the researcher and a research assistant trained by the researcher. Since the group discussions were held during the period of Covid-19, each group had eight (8) members as a precaution for contraction of the disease. Strict adherence to the WHO Covid 19 regulations were observed.

#### 3.4.4 Interview checklist for Key Informant Interview

The research proponent also engaged Key Informants, identified based on their functions/occupation and knowledge of historic illegal migration through face-to-face interviews to capitalize on oral traditions relevant to specific aspects of the proposed research. The following persons made up the informants: officials from International Organization for Migration, migration officials from Ministry of Foreign Affairs, Immigration Department, Interior Ministry, Office of the Vice President that housed the National Coordination Mechanism on Migration, Youth Ministry, Gambia Red Cross Society, Climate Change Officer at MECCNAR and migration Agents<sup>2</sup>. A total of twelve (12) persons took part in the in-depth interview of the KII. Discussions with these members arranged before-hand was useful in the collection of data about illegal migrants both within and without The Gambia. The KII was very apt in ascertaining the verbal information given by the respondents (Returnees and illegal migrants in Europe).

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<sup>2</sup> These are individuals and groups who are engaged in facilitation of illegal migrants' journeys for pay. They operate secretly in The Gambia, and other countries within the migrants' routes e.g. Niger and Libya et cetera.

### 3.4.5 Ground Truthing

The researcher was able to travel to various parts of the study area and observe physically the environment and how it had been impacted by the climate extreme events. Analyses of flood-prone areas and drought zones based on GIS map, photographic and video analyses, was complemented by guided transect walks, physical measurements and oral corroboration as required. The information collected was indispensable to delineating a credible sampling area and production of maps.

### 3.5 Data Analysis

This is the central component of the research, SPSS and Microsoft word excel were utilized in analysis of the data to integrate key concepts, perspectives and evidence into a meaningful piece of information. Raw data from the statistical survey was processed by using SPSS as indicated in the following sections. According to Thorne (2000) data analysis has been described as ‘the most complex and mysterious of all of the phases of a qualitative project, and the one that receives the least thoughtful discussion in the literature’. Therefore, this part will be given special consideration in the study.

#### 3.5.1 Statistical Package for Social Sciences (SPSS)

SPSS was the main software tool use for this study. Four analytical tools – descriptive statistics, reliability test (Cronbach  $\alpha$ -test), Regression logistics, Factor analysis, Mann Kendall test and Chi-square analysis – were used. Descriptive analysis was employed to analyze the socio-demographic data of respondents, and the survey questions on objective 1 and 4. Regression logistics and Mann-Kendal test was use to process the climate data (Precipitation and temperature) of the weather stations in the

study area from 1980 to 2020. The 31 questions on problems of migrants were tested for consistency and reliability using a Cronbach  $\alpha$ -test to check if one can proceed with the Factor analysis of the data obtained. After confirmation of the suitability of data for processing, Factor analysis was utilized to compute the data for objective 3 and the items were grouped into 3 main factors.

**Table 3.2 Reliability Statistics**

<b>Cronbach's Alpha</b>	<b>N of Items</b>
<b>.874</b>	<b>31</b>

### 3.5.2 Standard Precipitation Index (SPI)

The precipitation data was analyzed to identify drought years and extremely wet periods over the study period. In most regions, it is reliable to calculate SPI based on the precipitation data of continuous 30 years. The formation of drought is a multifaceted dynamic progression including multiscale water and energy cycle mechanisms, also it is related to agriculture, meteorology, hydrology, ecology, socioeconomic variables (Yao et al., 2020). Generally, drought can be grouped into four (agricultural, meteorological, hydrological and socioeconomic) depending on which of the systems suffer water deficit. Dehghani et al. (2019) and Van Loon et al. (2016) posited that, since drought is associated with lesser precipitation than the average, meteorological drought received extensive attention in the world. Because it can easily be noticed earlier than the rest. Drought index is a highly effective tool for quantifying drought such as the severity, duration, frequency, and spatial extent (Huang et al., 2017 and Wilhite, 2005). Many drought indicators have been propounded, but the SPI has been

recommended by the World Meteorological Organization as the effective indicator to track the meteorological drought (Hayes et al., 2011 and Svoboda et al., 2012). Since it is efficient and can monitor effectively any meteorological drought, this study adopted it for analysis of the precipitation of all the 7 stations within the study area.

### 3.5.3 Arc Geographic Information System 10.3 application

Arc GIS was used to analyze the Multi-temporal satellite data from 1980 to 2020 for land use and land change mapping. The sensors used for the scanning of satellite data for 1980, 1990, 2000, 2010 and 2020 are: Landsat 3 Multi-spectral Scanner, Landsat 5 Thematic Mapper, Landsat 7 Enhanced Thematic Mapper, Landsat 5 Thematic Mapper and Landsat 8 OLI TIRS respectively (See appendix 4). It was utilized in delineating the four regions of the study area to study the vegetation cover of the land changes during the period of study. This was very essential because it clearly showed the distinct images of the land cover over the years. It gave an informed picture of how various land use change over the years had deteriorated the vegetation of the area and which parts or regions had been more affected.

### 3.5.4 Thematic analysis

This was another technique utilized in the analysis of the data garnered during the research work. Both the KIIs and FGDs data were analyzed using thematic analysis. Thematic analysis is a practical data analysis approach for qualitative researchers; clarifying how to custom it appropriately and effectively can help scholars recognize its efficacy, versatility, and power (Michelle et al., 2020). Many qualitative research papers lack explicit description of the approaches informing data analysis, and when included, the terms used to describe data analytic methods are often used sketchily or are totally mislabeled (Sandelowski, 2010). Consequently, Nowell et al. (2017) posited that this

will make it difficult for readers to interpret the findings. It also backs the perceptions that qualitative research is less rigorous than quantitative research (Clarke and Braun 2013). Therefore, the thematic analysis of this study had explored how it can be applied across a range of themes to suit the deductive process to bring about informed findings. As rightly suggested by Braun and Clarke (2012), thematic analysis is an appropriate and powerful method to use when seeking to understand a set of experiences, thoughts, or behaviors across a data set. The six-steps framework of Braun and Clarke (2006) and Clarke et al. (2019) were employed in analyzing the data of the study.

#### 3.5.5 Microsoft Excel sheet

Excel is a very significant tool in designing graphs and charts. It was another tool applied in the analysis of the data. These tools were very essential in the work carried out under the methodological component. The SPSS analyzed data was transferred into excel sheets to generate suitable graphs for the report writing.

## CHAPTER FOUR:

### ANALYSIS AND DISCUSSIONS

#### 4.1. Reliability test

In order to accept the data collected for analysis and subsequent discussion, a reliability test was conducted. Cronbach's  $\alpha$ -test (Bruin, 2006) for 31 items in the survey questionnaires yielded a value of 0.874 indicating a high degree of consistency between the questions using Likert scales. The individual items' statistics can be found at Appendix 3.

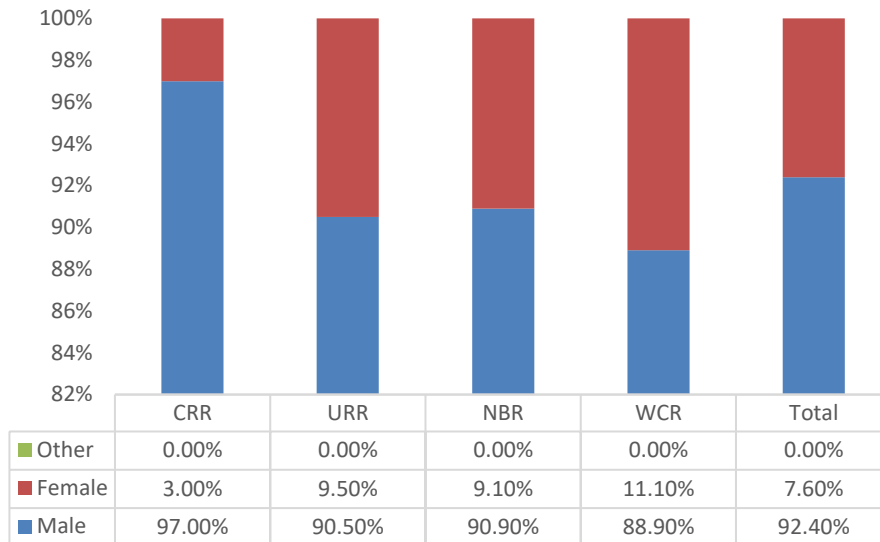
#### 4.2 Socio-Demographic Characteristics of Respondents

A total of 105 respondents participated in the survey from the 4 regions of the country. Eight of these were females and the rest males. As indicated in table 4.1, CRR and NBR each had 33 participants. There was only one female in CRR although 3 came from NBR. Both URR and WCR had 2 female interviewees each and a total of 19 and 16 males respectively (Table 4.1).

**Table 4.1: Total Respondents for the Survey by Region and Sex Composition**

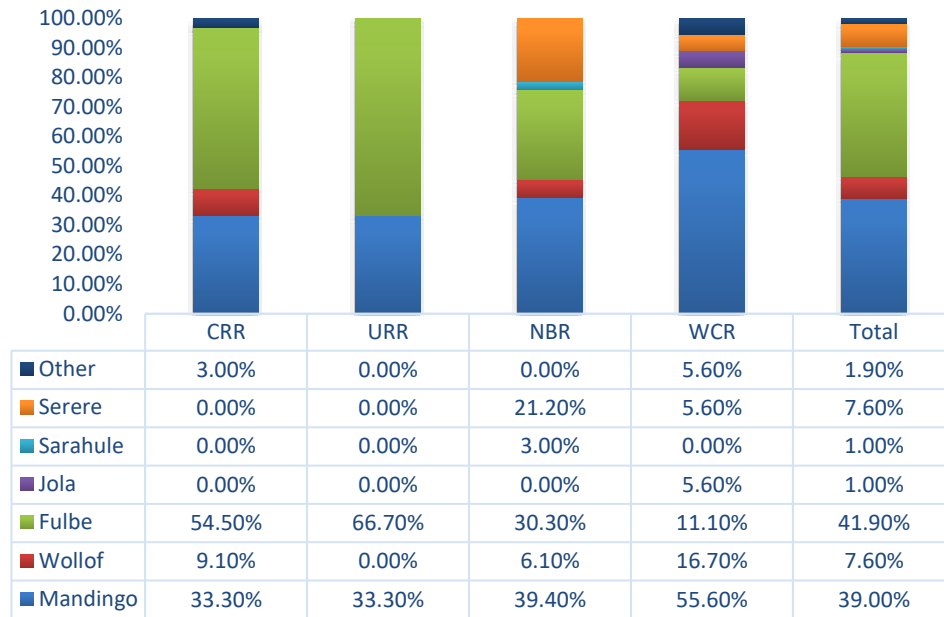
	Male	Female	Other	Total
<b>CRR</b>	32	1	0	<b>33</b>
<b>URR</b>	19	2	0	<b>21</b>
<b>NBR</b>	30	3	0	<b>33</b>
<b>WCR</b>	16	2	0	<b>18</b>
<b>Total</b>	<b>97</b>	<b>8</b>	<b>0</b>	<b>105</b>

Source (Author, 2023)



**Figure 4.1. Percentage Distribution of Respondents by Sex**  
**Source (Author, 2023)**

The result from the analyzed data showed a majority of those embarking on the perilous journey are males representing 92.4% of the total. This is not a surprise for those who knew the social setup of the country, where male children are considered the bread winners of families. They are responsible for providing the family basic needs such as feeding, clothing, shelter, education and health care for everyone within the household and some instances the larger extended family as well. At the regional level, West Coast and North Bank had 11% and 9% of their respondents as female.

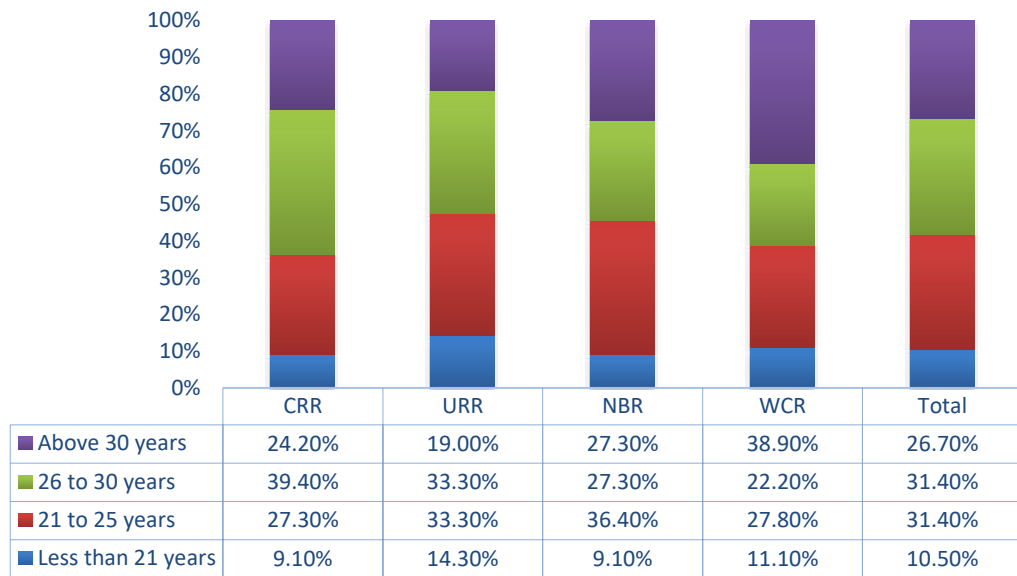


**Figure 4.2. Ethnic Distribution of Respondents by Region**  
**Source (Author, 2023)**

The Mandingo being the largest ethnic group in the country also represented the second highest number of illegal migrants from the survey (39%). Only the Fulbeh ethnic group had a higher number (42%). This tribe is also the second largest in the country according to the 2013 population census of the country. It is not surprising to see such a high number of Fulbeh engaging in this perilous path. Many youths from this group hailed from farming or herding families living in rural areas. Since the main economic activity of these families relies heavily on agricultural activities supported by rain-fed crops, any disruption of such endeavor will open up a window for adaptation. Illegal migration will surely be a suitable option for them if they believe getting a visa to Europe is a mere dream.

In terms of the respondents' ages, 11% of the total fall below twenty-one (21) years. These youths are likely to suffer too much on this perilous trip. This is because they are so young and inexperienced. Some of them are school-going youngsters and

are supposed to be in school. With little knowledge and skills, they find themselves amid adults and senior youths above their ages in a foreign land with little support.

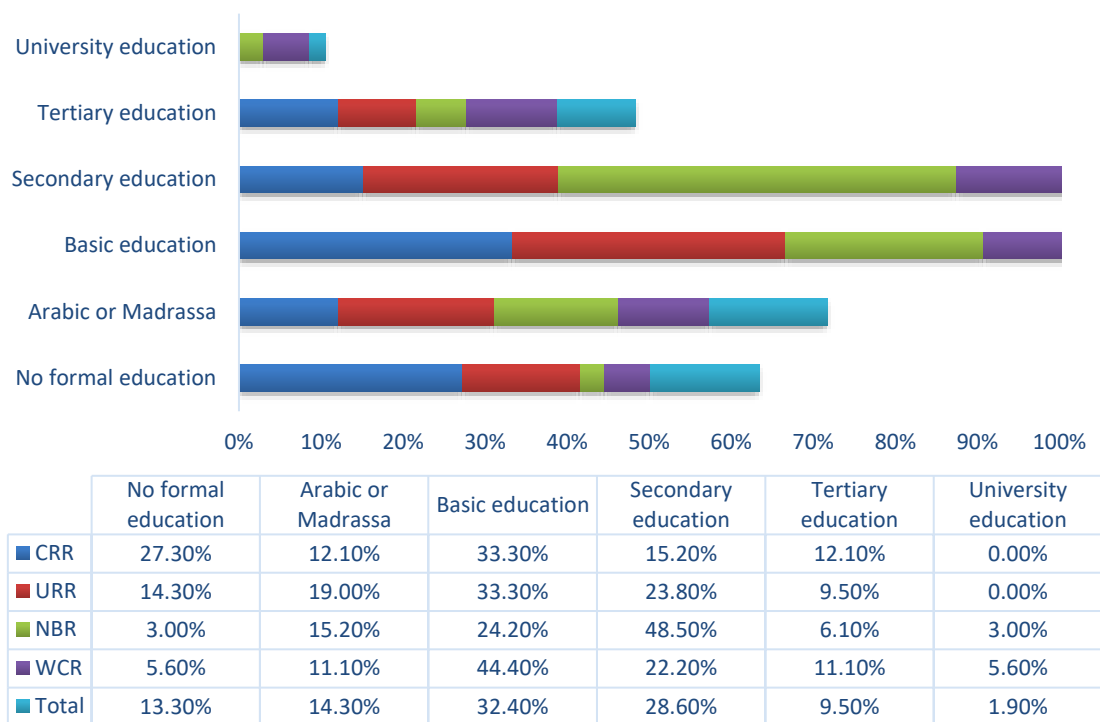


**Figure 4.3. Age Category of Respondents by Region**

**Source (Author, 2023)**

The majority of those engaging in the journey are youths between the age brackets 21 and 30 years old. This category represents 63% of those on the move with CRR and URR each having 66% then the number reducing to 64% for NBR and a further 63% for WCR. The senior youths above 30 years hitting the journey represent 27% of the number from the survey. And West Coast Region had the highest percentage with 40%. The educational background of the respondents is very significant since it prepares them for future endeavors, especially those wanting to migrate to a foreign land. If one is equipped with knowledge and skills, it will ease their problems during their journeys. Interestingly, 13% of the sample had no formal education before embarking on the perilous journey. The majority of those without any formal education originated from the CRR (27%) followed by URR (14%) and then WCR and NBR (6% and 3%) respectively.

The majority of those with formal education (32%) also had only basic education which is too low to earn them anything apart from labor work like what the illiterates are doing in Europe. This is followed by other half-baked literates representing 29% of the sample, most of whom hailed from NBR. All these 3 categories are not specialized in any skillful job yet and they end up learning a skill along the way or when they reach their destination.



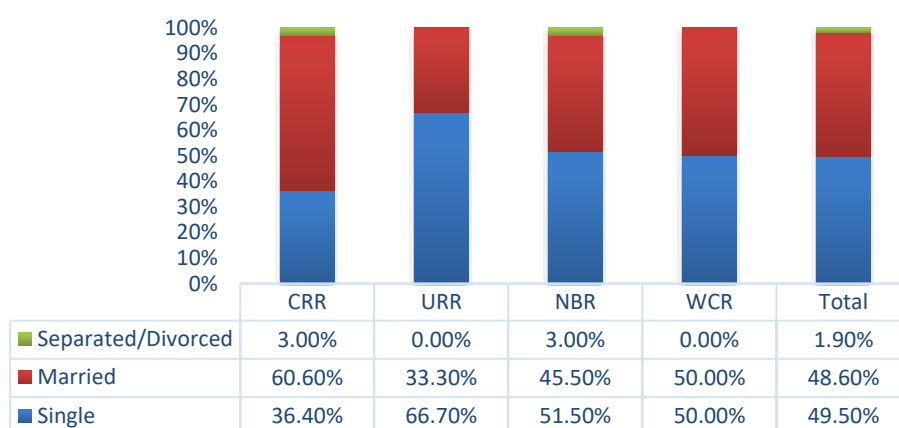
**Figure 4.4. Educational Background of Respondents per Region**  
**Source (Author, 2023)**

The educational background of the respondents is very significant since it prepares them for future endeavors, especially those wanting to migrate to a foreign land. If one is equipped with knowledge and skills, it will ease their problems during their journeys. Interestingly, 13% of the sample had no formal education before embarking on the perilous journey. Majority of those without any formal education

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The majority of those with formal education (32%) also had only basic education which is too low to earn them anything apart from labor work like what the illiterates are doing in Europe. This is followed by other half-baked literates representing 29% of the sample, most of whom hailed from NBR. All these 3 categories are not specialized in any skillful job yet and they end up learning a skill along the way or when they reach their destination.

Therefore, only 10% and 2% of the surveyed persons had tertiary and University Education respectively. These are considered to have an acceptable level of education to easily fit in the societies they will find themselves. This is because they are mature enough and expected to have the skill to make them earn a living immediately after they arrived at their destination. Regionally, only WCR and NBR had university undergraduates embarking on the illegal “Back way” journey as it is commonly called in The Gambia.



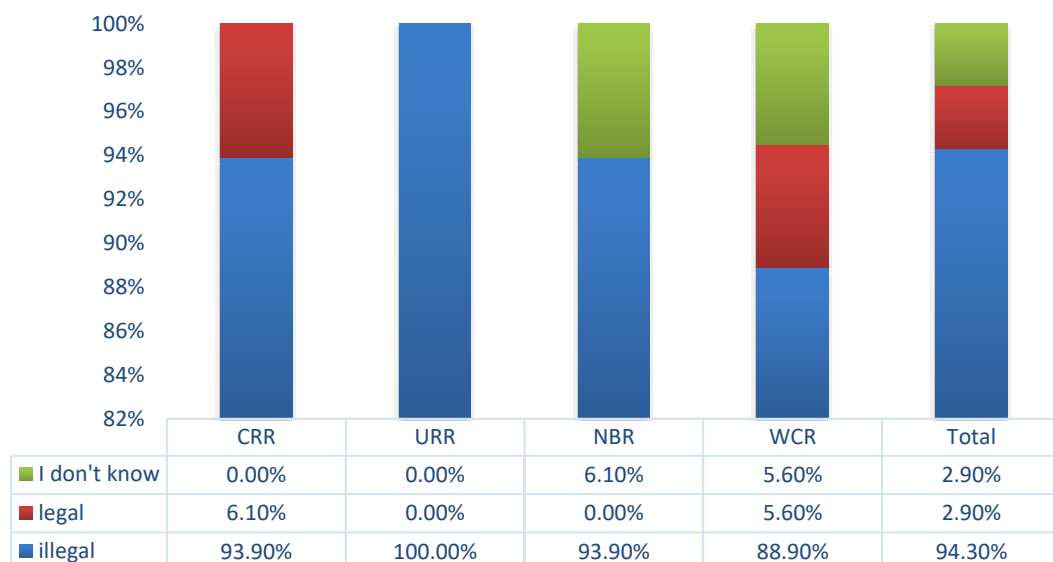
**Figure 4.5. Marital Status of Respondents**

Source (Author, 2023)

It is interesting to realize that half of the sample are married. Their migration will leave their spouses single for an unknown period. This could have a lot of implications for the families they left behind. The majority of those married are from CRR with a whopping 61% and followed by WCR with 50% representing exactly half of its migrants just like the total for all the regions. On the other hand, the singles from the migrants mostly are from URR (67%). CRR registered the lowest singles with 36%, leaving the remaining two regions at about 50% each.

### 4.3. Research Issues (Objective by Objective)

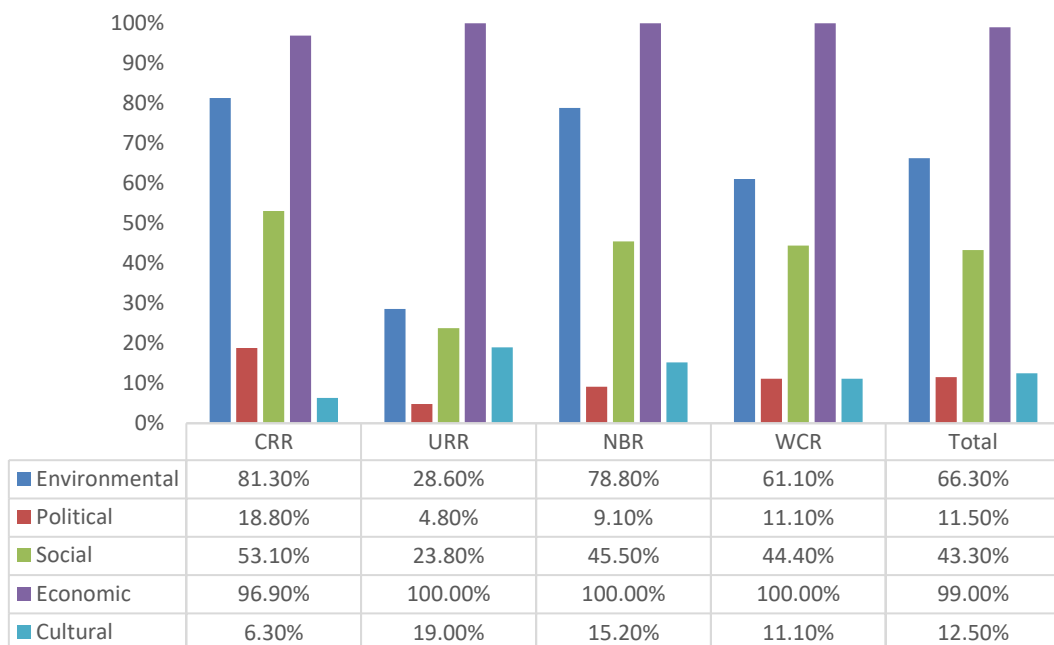
#### 4.2.1. Data presentation on the perception level and causes of migration in the study area



**Figure 4.6. Respondents' Perceptions of the Legality of the "Backway" Journey**  
Source (Author, 2023)

During the proposal defense of this work, the nomenclature of the term "illegal migration" was a subject of debate among professionals. Some consider it appropriate to use and others did not. Consequently, the researcher decided to bring it to the attention of the migrants themselves to gauge their stance on the subject. Hence, the results show the following: Ninety-four per cent (94%) of the respondents accepted their journey to

Europe is illegal because they do not have a visa to immigrate to their destination since it is sanctioned by their laws. Three per cent (3%) did not accept their migration to Europe as illegal and they explained that they have a right to migrate anywhere if they choose to do so. Hence, if Europeans make visa accessibility difficult or impossible to attain, then the "Backway" is there for migrants to exploit. It does not require lengthy protocols and it cannot be stopped by anyone. *“If one outlet closes, another will surely open because migration is a matter of choice and it is part of human existence”*, said one of the respondents.

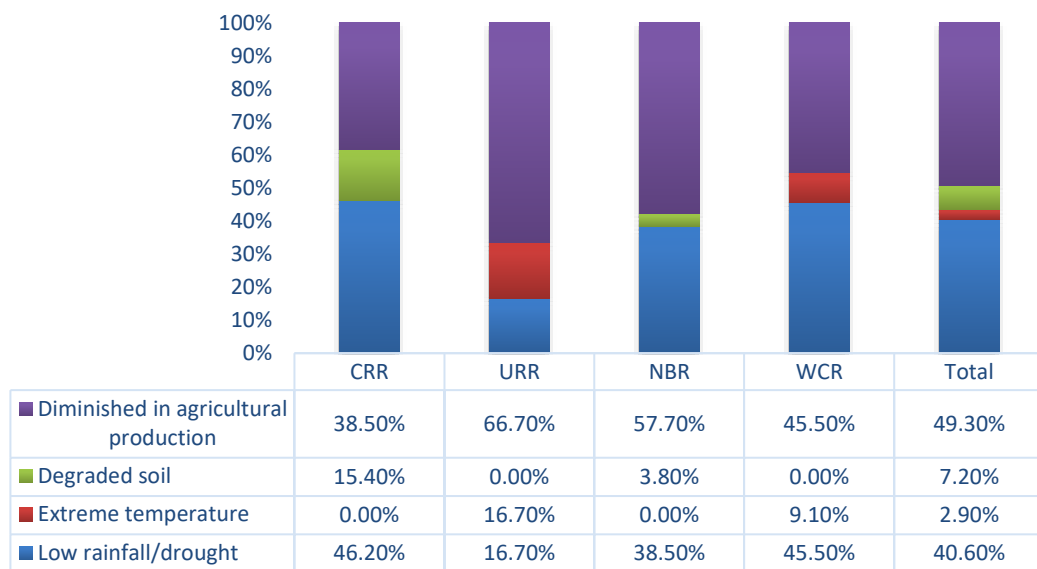


**Figure 4.7. Factors Influencing Illegal Migration of Respondents per Region**  
**Source (Author, 2023)**

Migration is a common phenomenon throughout human existence, but it is always happening due to various motives. Sometimes it happens voluntarily or otherwise depending on the push-pull reasons. The movement of the respondents in the study has been grouped into five vital factors. The economic factor weighs far more than all the other factors identified as causing illegal migration of The Gambia's youths. This

is in line with Todaro’s Model of Rural - Urban Migration. It amassed 99% of the responses from the sample followed by environmental factors constituted 66% and social 43%. The two remaining key factors though present but were the least causing the migration of the youths. Culturally and politically, caused the migration of only 13% and 12% respectively as per the research respondents.

As per region, CRR and NBR being the driest regions in the country had a higher percentage of environmental-induced migrants of 81% and 79% sequentially, than WCR and URR. The Upper River Region has a very low number whose migration is considered to be environmentally induced with a solitary 29%.



**Figure 4.8. Environmental-induced Migration**

**Source (Author, 2023)**

Since the main thrust of the study is to investigate the impact of climate extreme events (Flood and drought) on the illegal migration of youths, then the environment of farming communities should be studied carefully. This led to the identification of climate extreme events affecting the study area.

The results reported that diminished agricultural production in the study area is a contributing factor for the emigration of inhabitants. About 49% of the respondents blamed the low-yield for farmers to be the main reason for pushing youths out of the area. Forty-one per cent believe it is drought that is crippling their farming activities making the environment unsuitable for livelihood sustenance, hence many active residents migrate as an alternative to improve their conditions of living.

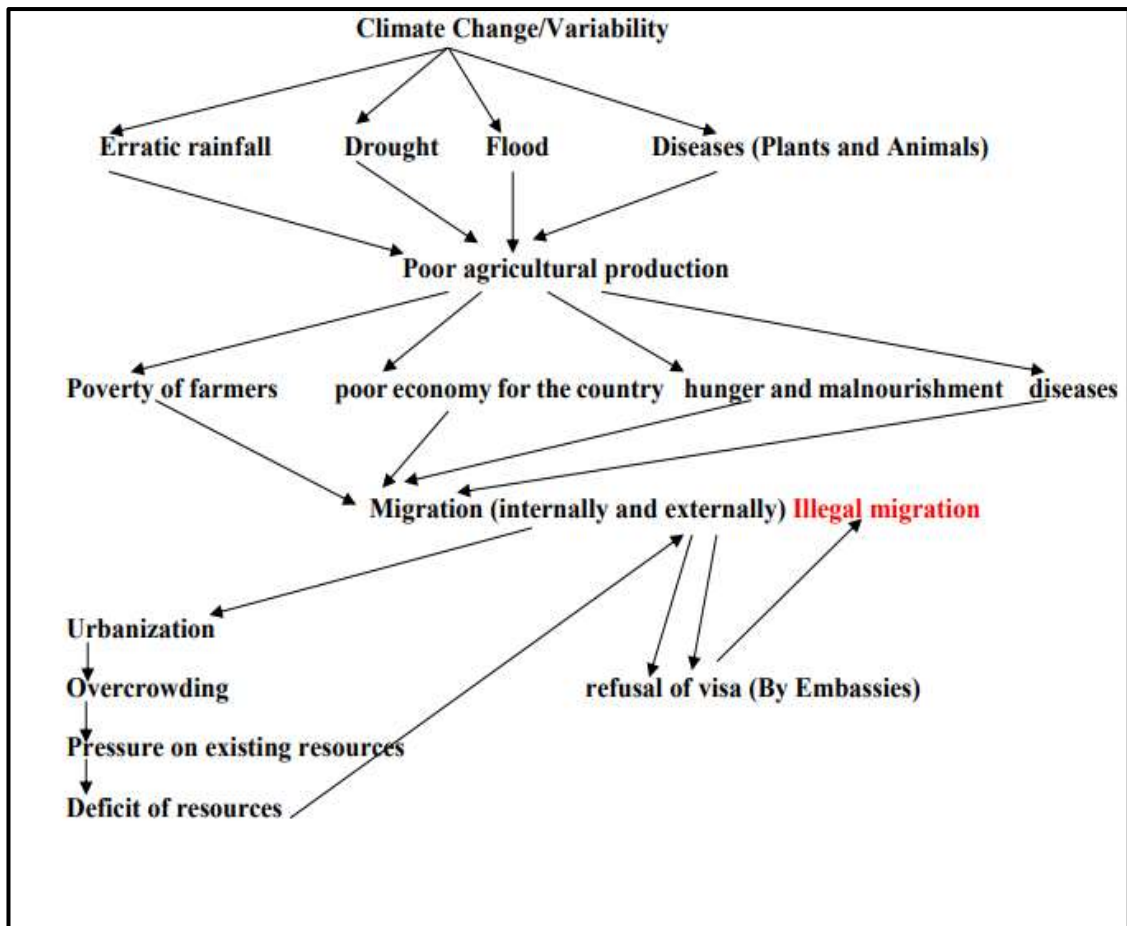
Another problem affecting the environment is degraded soils even though small in totality but significantly impacting the CRR with 15% of responses acknowledging its impact. Extreme temperatures are also reported to be seriously affecting the environment in URR (17%) and WCR (9%). These climate extreme events are seriously affecting the livelihoods of many farming communities and all facets of life. Most participants in the FGDs blamed government for doing little in supporting the activities of farming communities.

One FGD participant stated that *“The government is not giving support to the farmers or Agricultural workers in general. When farmers cultivate crops and have a bumper harvest, they will not have a market for their produce. There are other instances the rainy seasons will not be good which translates to poor harvests for the farmers”*. Furthermore, many interviewees reiterated that the Government is not supporting the farming communities and those who went to Koranic Schools. Skillful people like carpenters, masonry and blacksmiths, especially those residing in rural communities are all neglected by the state. The only sector that the government considers and support is western education and those who pursue that curriculum.

#### 4.2.2. The Effects of Flood and Drought on Illegal Migration

The Gambia's economy is predominantly agrarian and it is the most important sector in the country's economy. Thus, agricultural production and productivity is the main sector that directs the development of the country and it provides employment for about 75% of the labor force. Food and cash crop production generate approximately 40% of the country's foreign exchange and 30% of national GDP (FAO, 2023). Given the main source of GDP derived from Agriculture and tourism. Many families from the rural communities of the Gambia rely heavily on agriculture for their livelihoods and economic prosperity. And the production of crops and animal rearing by these folks is dependent on the annual rainfall which is short and erratic due to changing climate. Temperature and precipitation are fundamental components of a climate and any swift in their pattern can alter the health of human beings, ecosystems and services of any environment (Onoz & Bayazit, 2012).

The study sought information from farmers during the FGDs and KIIs. It designed a model that best described the results on how climate change and climate variability had contributed to and accelerated the illegal migration of The Gambia's youths (Figure 4.9).



**Figure 4.9. How Climate Change/Variability Induces Illegal Migration of Gambia’s Youth**

Source (Author, 2023)

Karmeshu (2012) stated that an increase in temperature can result in heatwave and incidents and cause illness and finally death in susceptible populations. Furthermore, temperature increase can induce more evaporation and cloud formation to increase precipitation. This could eventually cause flash floods in areas that are low lying and with hard ground surface.

This study focuses on identifying trends in the four (4) regions mentioned in chapter one's description of annual precipitation and temperature. Investigations on the erratic behavior of the two key climatic variables (temperature and precipitation) offer

intriguing insights into how they may affect the likelihood of drought and flood in the nation. The time period under consideration is 40 years (From 1980 to 2020).

*4.2.2.1. Trend analysis*

**Table. 4.2. Mann-Kendall Test for Precipitation Data for the 7 Stations**

<b>Variable</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. deviation</b>
<b>Kerewan</b>	452.800	1297.800	846.080	215.809
<b>Janjangbureh</b>	437.500	1375.900	798.650	184.801
<b>Basse</b>	538.300	1394.300	887.710	189.316
<b>Fatoto</b>	472.100	1384.000	756.128	210.516
<b>Sapu</b>	526.500	1782.300	923.650	288.956
<b>Yundum</b>	423.600	1418.700	914.848	241.106
<b>Kaur</b>	223.200	1287.200	769.640	211.889

**Source (Author, 2023)**

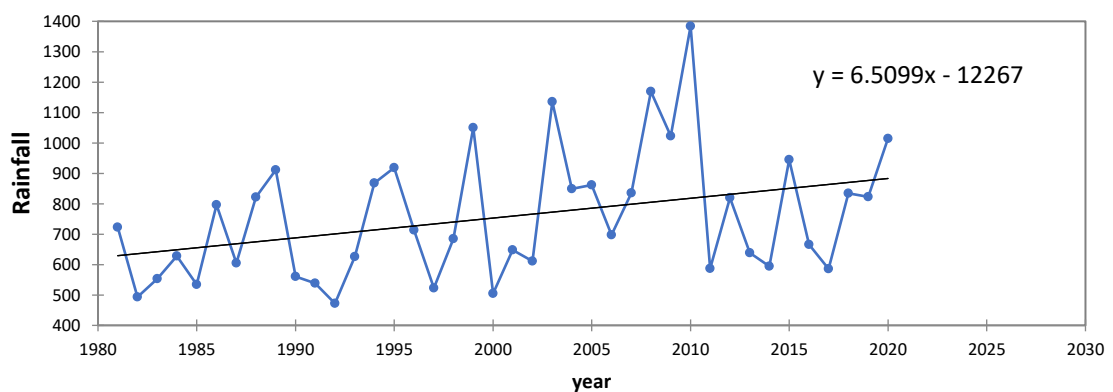
The computed data from the 7 stations in table 4.2. displayed the parameters (minimum, maximum, mean and standard deviation) of each station. Sapu in CRR south received the highest amount of rainfall with 1782 millimeters per annum (mm/year) whereas Kaur in the same region registered the lowest with 223 millimeters per year (mm/year). This is an interesting discovery having these two stations in the same region, and the latter located in the northern part of CRR. This part of the country is generally

considered to be drier than the southern part that usually accumulates more rainfall annually. There is varying mean of precipitation from Kerewan right down to Kaur.

Generally, the stations located in the southern part of The Gambia (Yundum, Sapu and Basse) have the highest mean of rainfall over the 40 years analyzed. They recorded 915 mm, 924 mm, and 888 mm respectively. In contrast, the 2 stations (Kerewan and Kaur) situated in the northern part of the country had an average of 847 and 770 millimeters respectively. The only station in an island, Janjangbureh had an average rainfall of 799 mm. Interestingly, table 4.2. indicated that this is the only station that show no significance in the series as computed by the MK two tailed test.

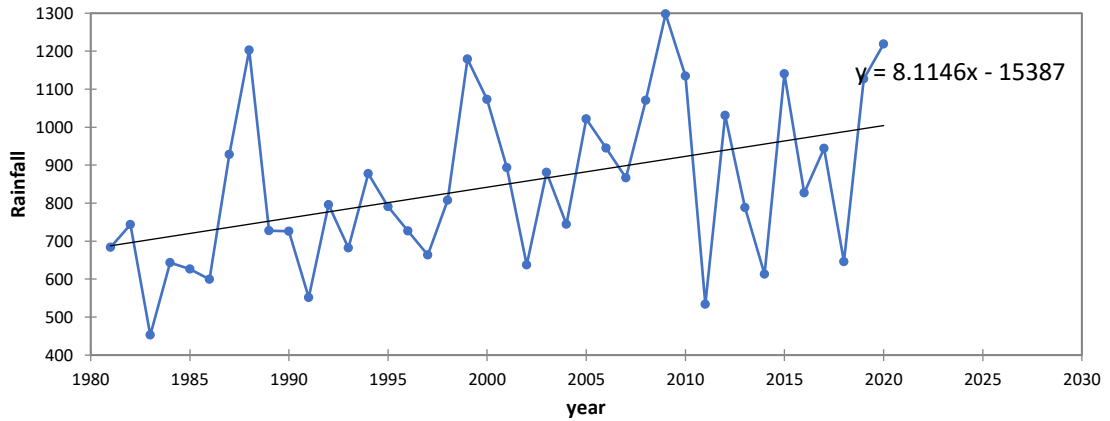
The information on table 4.2. are for 12 - months precipitation accumulation observations for each of the 7 weather stations (Kerewan, Janjangbureh, Basse, Fatoto, Sapu, Yundum, and Kaur) in the study area for the period (1980 – 2020). The rainfall is measured in millimeters per annum (mm/year).

On plotting the linear trend line for the seven stations, the following results in Fig. 4.10, 4.11, 4.12, 4.13, 4.14, 4.15, and 4.16 were obtained.



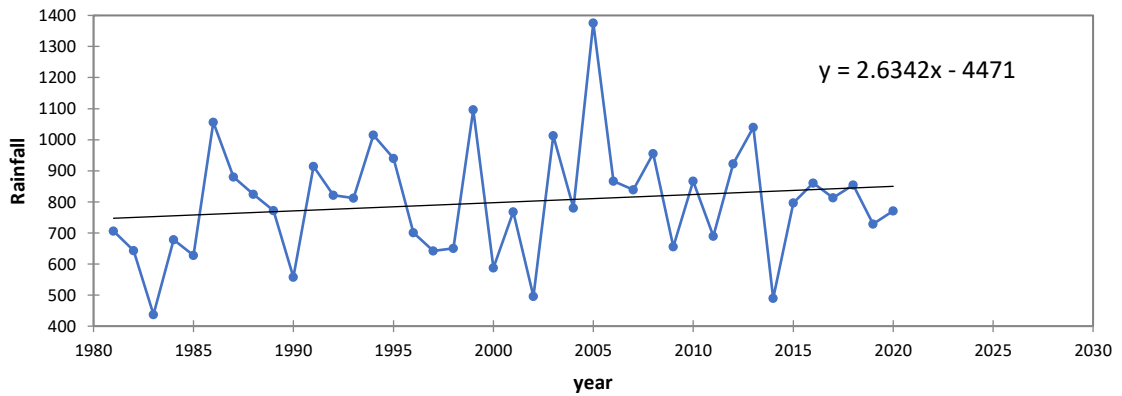
**Figure 4.10. Linear Trend Line Corresponding to Precipitation Data (Kerewan Station)**

**Source (Author, 2023)**



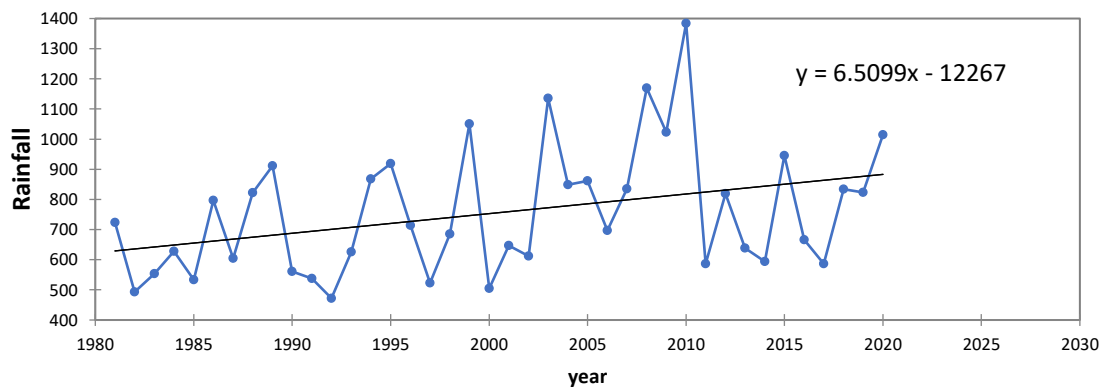
**Figure 4.11. Linear Trend Line Corresponding to Precipitation Data (Basse Station)**

Source (Author, 2023)



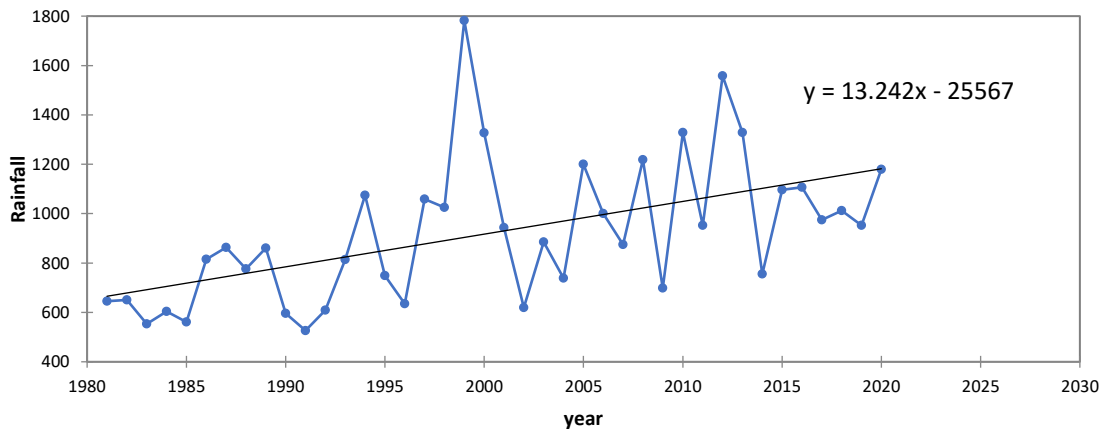
**Figure 4.12. Linear Trend Line Corresponding to Precipitation Data (Janjangbureh Station)**

Source (Author, 2023)



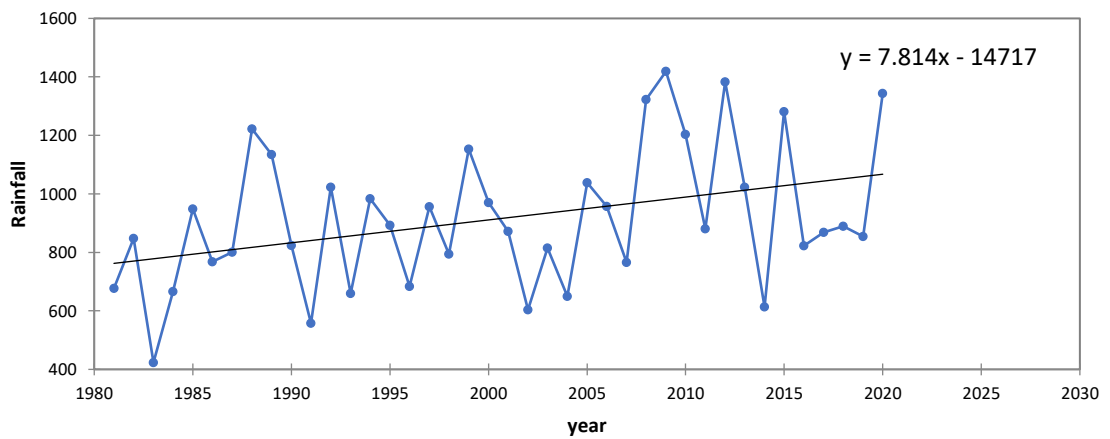
**Figure 4.13. Linear Trend Line Corresponding to Precipitation Data (Fatoto Station)**

Source (Author, 2023)



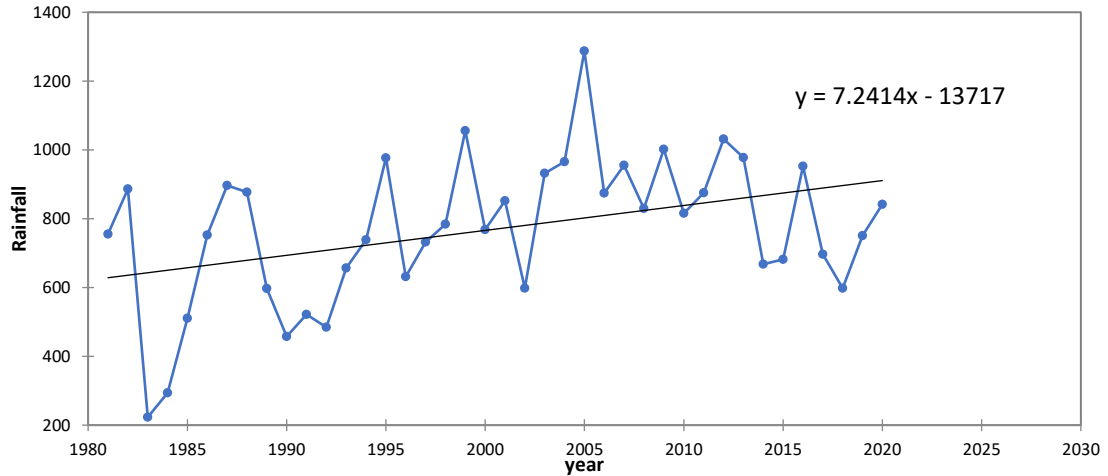
**Figure. 4.14. Linear Trend Line Corresponding to Precipitation Data (Sapu Station)**

**Source (Author, 2023)**



**Figure 4.15. Linear Trend Line Corresponding to Precipitation Data (Yundum Station)**

**Source (Author, 2023)**



**Figure 4.16. Linear Trend Line Corresponding to Precipitation Data (Kaur Station)**

**Source (Author, 2023)**

**Table 4.3. MK trend test/two tailed for the 7 weather stations in the study area.**

Mann-Kendall trend test / Two-tailed test (Weather stations in the study area)							
	Kerewan	Janjangbureh	Basse	Fatoto	Sapu	Yundum	Kaur
<b>Kendall's tau</b>	0.312821	0.100	0.233	0.244	0.418	0.231	0.248
<b>S</b>	244	78.000	182.000	190.000	326.000	180.000	193.000
<b>Var (S)</b>	0	0.000	0.000	0.000	0.000	0.000	7365.667
<b>p-value (Two-tailed)</b>	0.004183	0.372	0.034	0.027	< 0.0001	0.037	0.025
<b>Alpha</b>	0.05	0.05	0.05	0.05	0.05	0.05	0.05
<b>Test interpretation</b>	Reject	Accept	Reject	Reject	Reject	Reject	Reject

**The p-value is computed using an exact method**

**Source (Author, 2023)**

The analysis for the Sen's slope of the MK trend test showed only Janjangbureh out of the 7 stations had no significant change in the trend of its precipitation. Because the p-value for this station is greater than the  $\alpha$  (alpha) = 0.05, hence one cannot reject the null hypothesis. It, therefore infer there is no trend in the analysis of the precipitation data for Janjangbureh only. The remaining 6 (Kerewan, Basse, Fatoto, Sapu, Yundum

and Kaur) all demonstrated a significant change in its trend of annual rainfall over the period (1980 – 2020). On accepting the null hypothesis, the result is said to be statistically insignificant. For this test, the Null Hypothesis was accepted for only 1 station. The trend is showing an increase in the annual rainfall of these stations during the period under review. Though the rise is not uniform among the stations, Sapu station in CRR south has the highest increase in the precipitation trend, and for Fatoto and Basse, both in URR had the lowest and equal rise in their rainfall trend.

Furthermore, a standard precipitation index is being computed to give a pulsating representation of the possible drought and wet conditions for the 7 weather stations of the study area from 1980 - 2020.

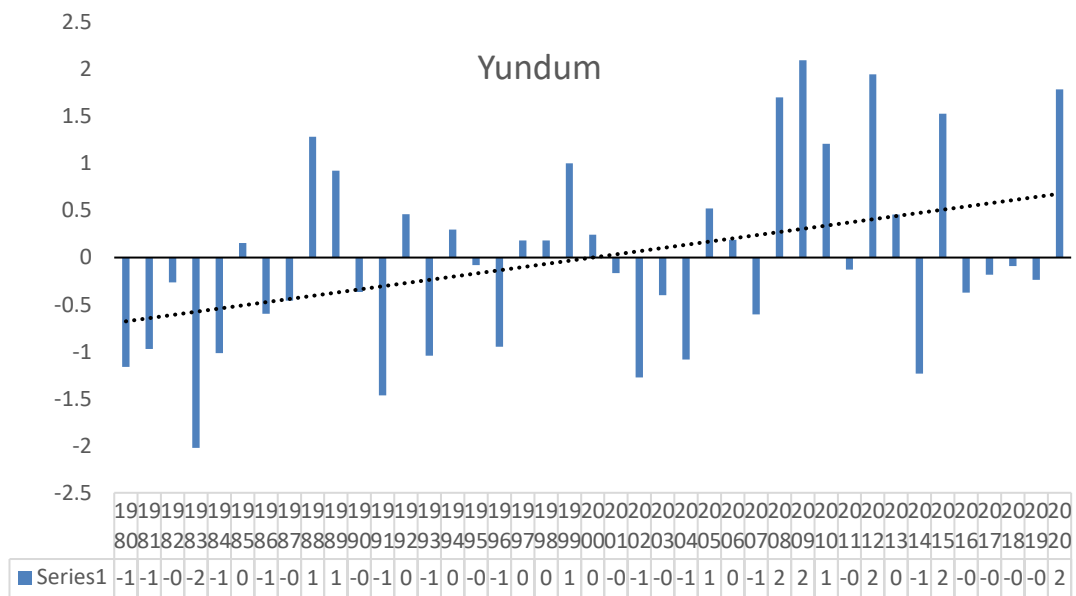
#### *4.2.2.2. Standard Precipitation Index (SPI)*

The SPI results of the seven weather stations in the study area. Since rain – fed crop production is the dominant agricultural activity practiced in the four regions, it is significant to run SPI analysis of the precipitation data for the study period to detect the drought and flood years. This will reliably inform the research about which climate extreme event is suppressing agricultural activities in the area.

Figures 4.17 show the results of the SPI of the 7 weather stations in the four regions under study; Yundum in the WCR, Fatoto and Basse in the URR, Janjangbureh, Sapu and Kaur in the CRR and finally Kerewan in the NBR. The results for all the stations range from near normal, moderate, severe to extreme dry or wet conditions. These infer the variability of climate in The Gambia is actually having an impact on the agricultural production of its farmers. For instance, soil moisture conditions respond to precipitation anomalies on a relatively short scale, which could seriously affect the crops

if there is a dry spell. On the other hand, there are extreme wet conditions in several years that is also leading to flash floods submerging of crops.

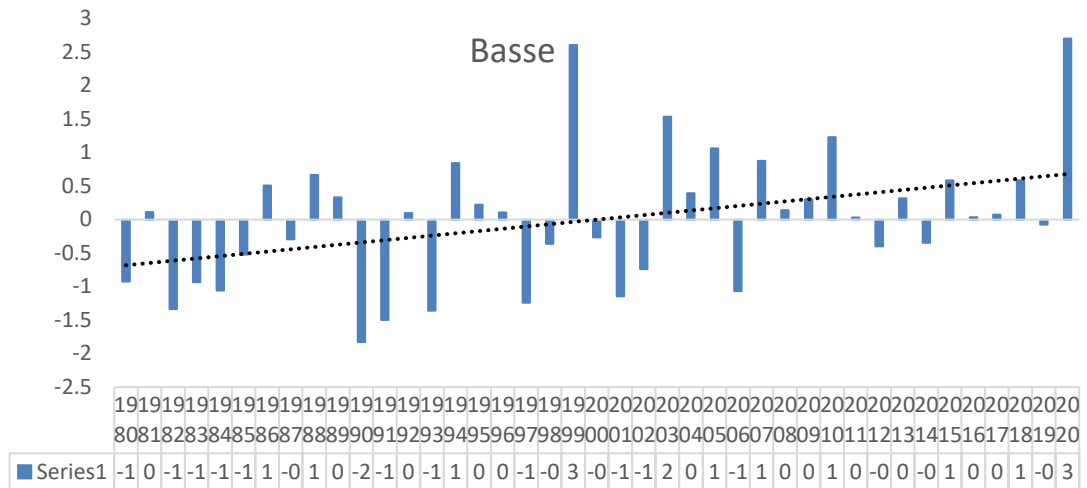
Regionally, West Coast that lie in the south western part of the country experiences more wet conditions than all other regions. It recorded five extreme wet conditions mostly from 2007 to 2020. The peak of wet condition within the study period being 2009 with a value of 2.10 The only year when the region experienced a severe drought condition was in 1983, which was wide spread not only in The Gambia, but most part of the Sahel countries in West Africa.



**Figure 4.17. SPI Yundum Weather Station (West Coast Region)**

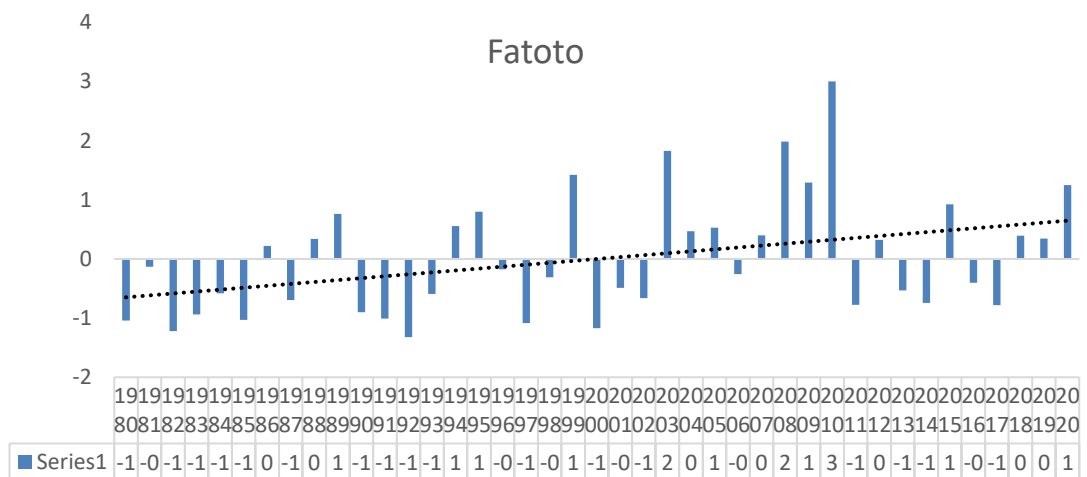
**Source (Author, 2023)**

Basse and Fatoto in the extreme eastern region of the country exhibit similar precipitation trend with three extreme wet conditions during the second half of the study period. In 1999 and 2020 Basse station registered highest precipitation whereas 2010 was the peak for Fatoto. Drought is not a pronounced event in this region, since the Basse station recorded only one extreme dry condition in 2010 with a value of -1.83 and none in Fatoto.



**Figure 4.18. SPI Basse Weather Station (Upper River Region)**

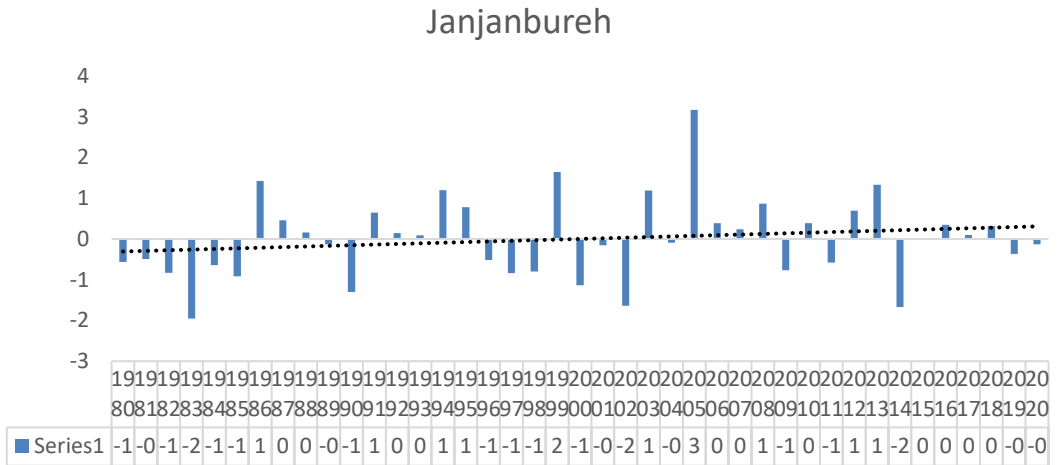
Source (Author, 2023)



**Figure 4.19. SPI Fatoto Weather Station (Upper River Region)**

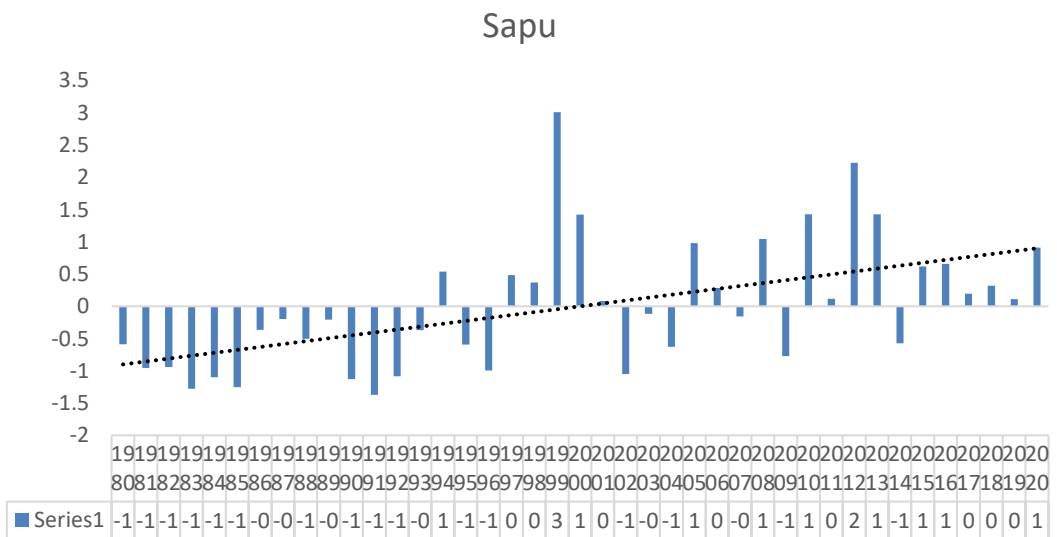
Source (Author, 2023)

The Central Region of the country has three weather stations and Janjangbureh station is the solitary one that exhibited no significance in the trend of its precipitation over the years under review. The station registered the highest precipitation amount in 2005 with a value of 3.16 and two years of extreme dry conditions. Sapu in the southern part of the region experienced two extreme dry conditions out of the 41 years. And Kaur in the northern part also experienced similar conditions that were recorded in the early eighties, specifically in 1983 and 1984.



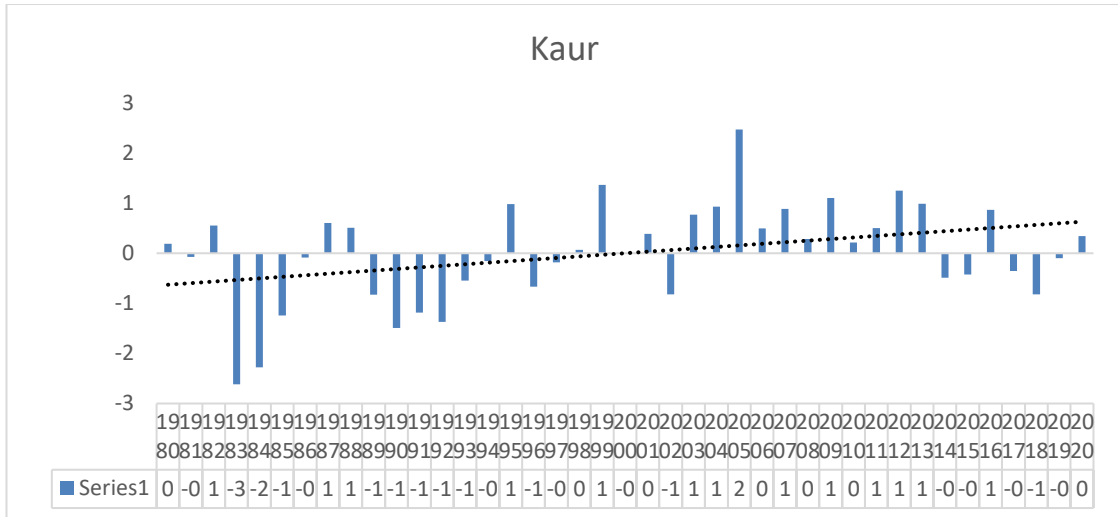
**Figure. 4.20.** SPI Janjanbureh weather station (Central River Region)

Source (Author, 2023)



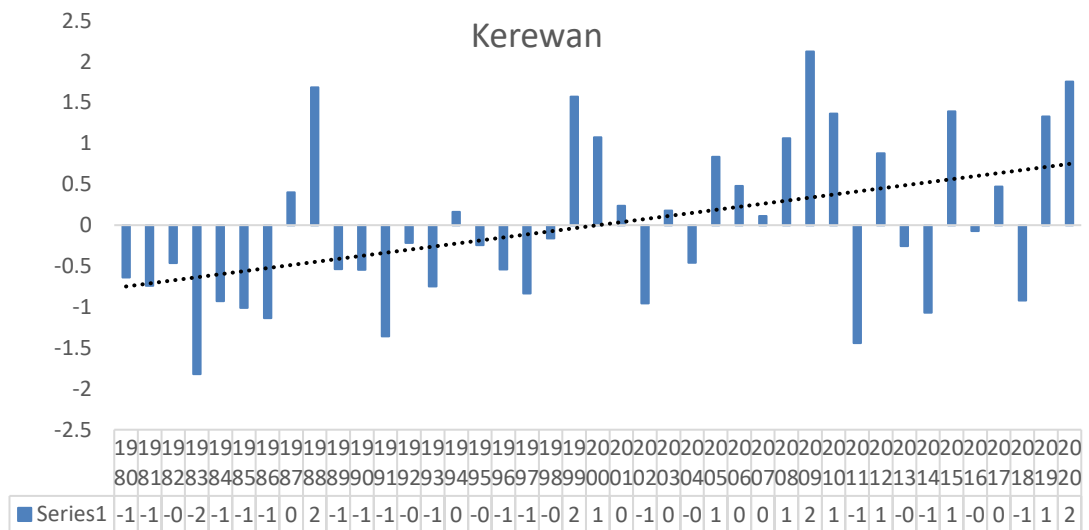
**Figure. 4.21.** SPI Sapu weather station (Central River Region)

Source (Author, 2023)



**Figure. 4.22. SPI Kaur Weather Station (Central River Region)**  
**Source (Author, 2023)**

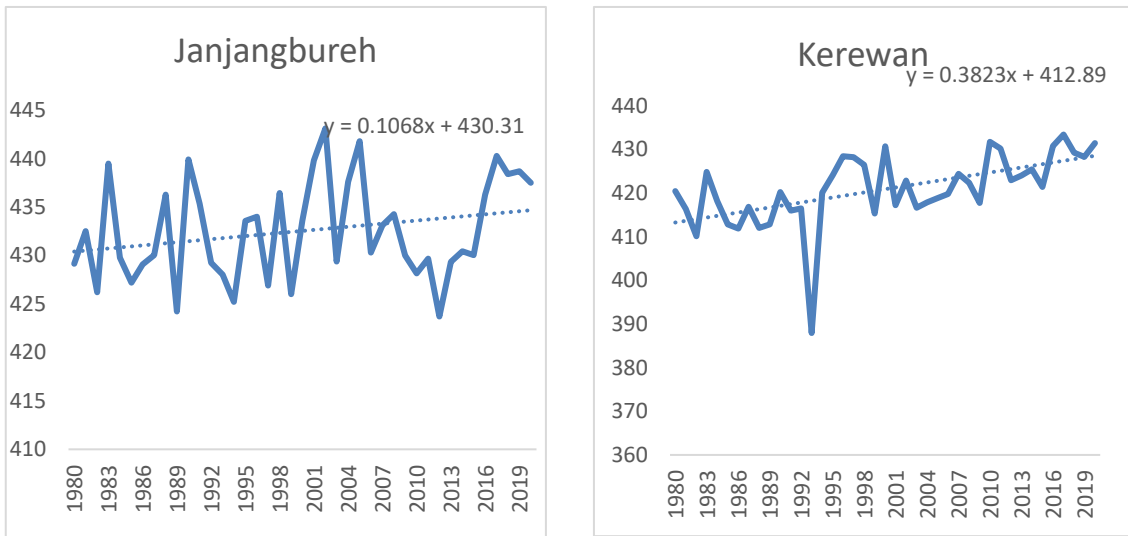
Finally, the North Bank in the northern part of the country is observed by many Gambians as the driest region due to its position and closeness to the dry zone of the Senegal Republic. But the SPI results indicated a different perspective, since it showed 4 times of extreme wet events that is a bit higher than some weather stations in the country but one extreme dry condition in 1983. There is also 4 times of severe wet conditions that is well spread along the forty-one years period.



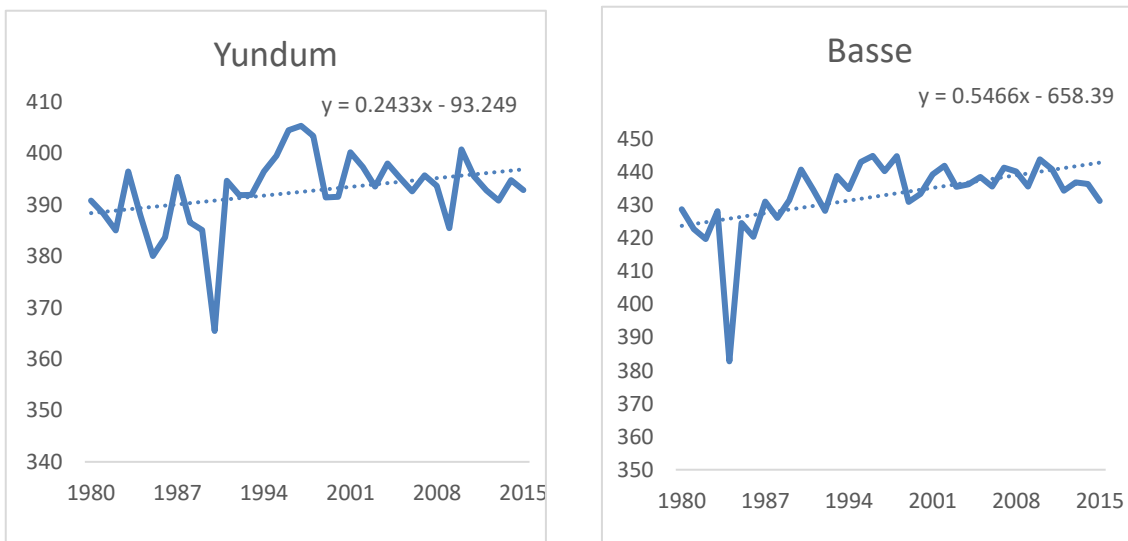
**Figure 4. 23. SPI Kerewan Weather Station (North Bank Region)**  
**Source (Author, 2023)**

#### *4.2.2.3. Trend analysis of temperature in the four regions of the study area*

The temperature data obtained from the study area was analysed to gauge the trend of temperature over the years. The results are shown in Figures 4.20 and 4.21. It is evident that temperature in the study area has been rising in all the regions unabated. The highest total temperature value was recorded in Basse in 1996 with a total of about 445 degrees Celsius. This was followed by Janjangbureh with a maximum of 443 degrees in 2002. Kerewan weather station in the north western part of the country recorded its highest ever maximum temperature in 2017 with a value of about 433. This was the most recent high value recorded among all the weather stations in the study area. Finally, Yundum station in the West Coast Region recorded 405 degrees Celsius in 1997, which was the peak annual total temperature for the area.



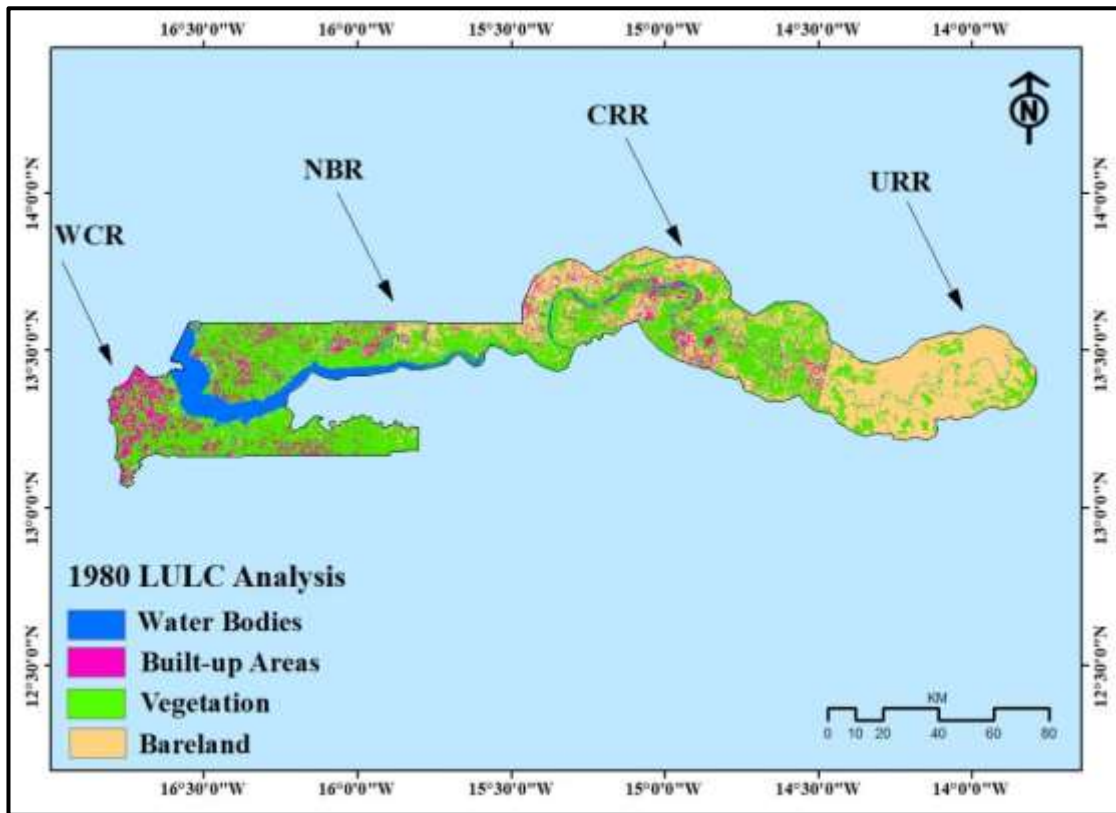
**Figure 4. 24. Maximum temperature data analysis Janjangbureh (CRR) and Kerewan (NBR)**



**Figure 4. 25. Maximum temperature data analysis Yundum (WCR) and Basse (URR)**  
**Source (Author, 2023)**

#### 4.2.2.4 Multi-temporal satellite data analysis

##### A. 1980 Land Use and Land Cover Analysis



**Figure 4. 26. LULC (1980)**  
**Source (Author, 2023)**

The analysis showed a significant change in the land use and land cover of the different regions from 1980 to 2020 (Figure 4.24). Many agricultural lands had been transformed into residential and bare land that is infertile thus impacting farming activities. The analyzed satellite data showed four classes namely: water bodies; vegetation; built-up areas; and bare land (Figure 4.25). The water bodies had been increasing significantly from 1980 to 2010. It represented 2% to 9% in 1980 to 2010 respectively. But there is a significant drop in 2020 to about 7.62% of the total land area of the study site.

B. 1990 Land Use and Land Cover Analysis

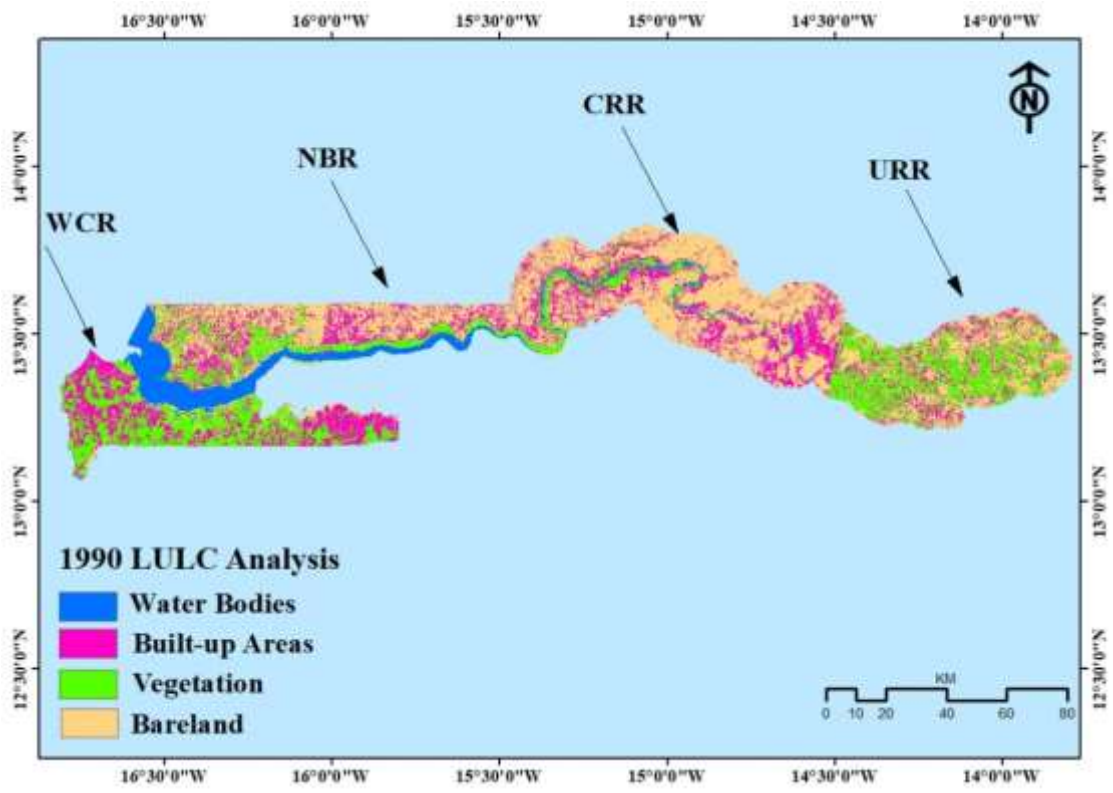
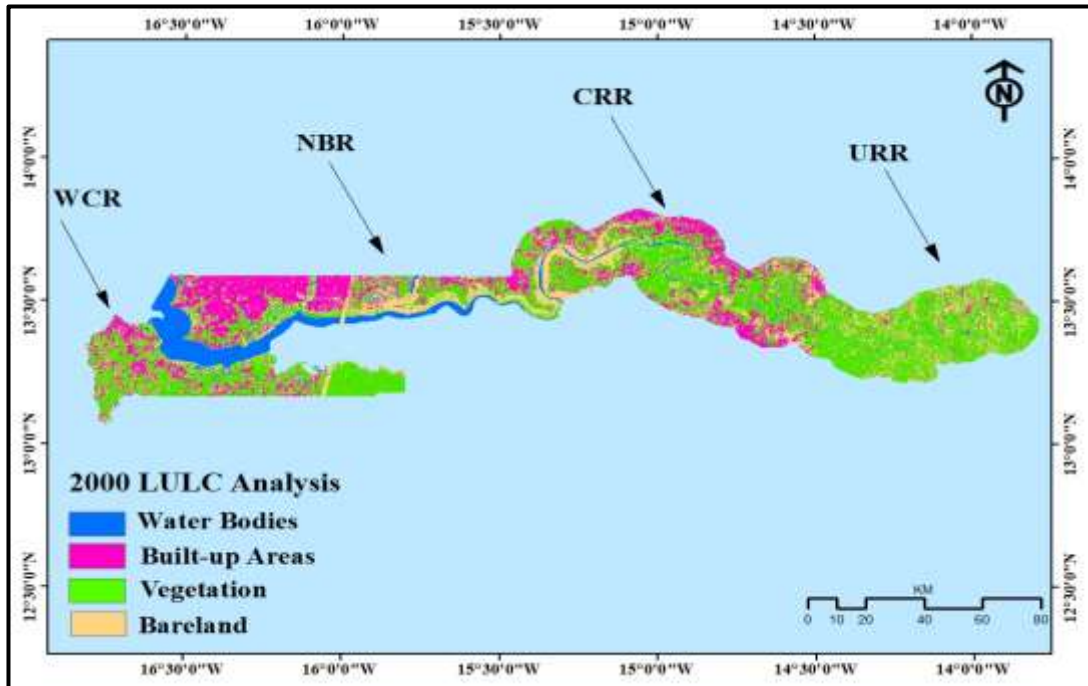


Figure 4. 27. LULC (1990)  
Source (Author, 2023)

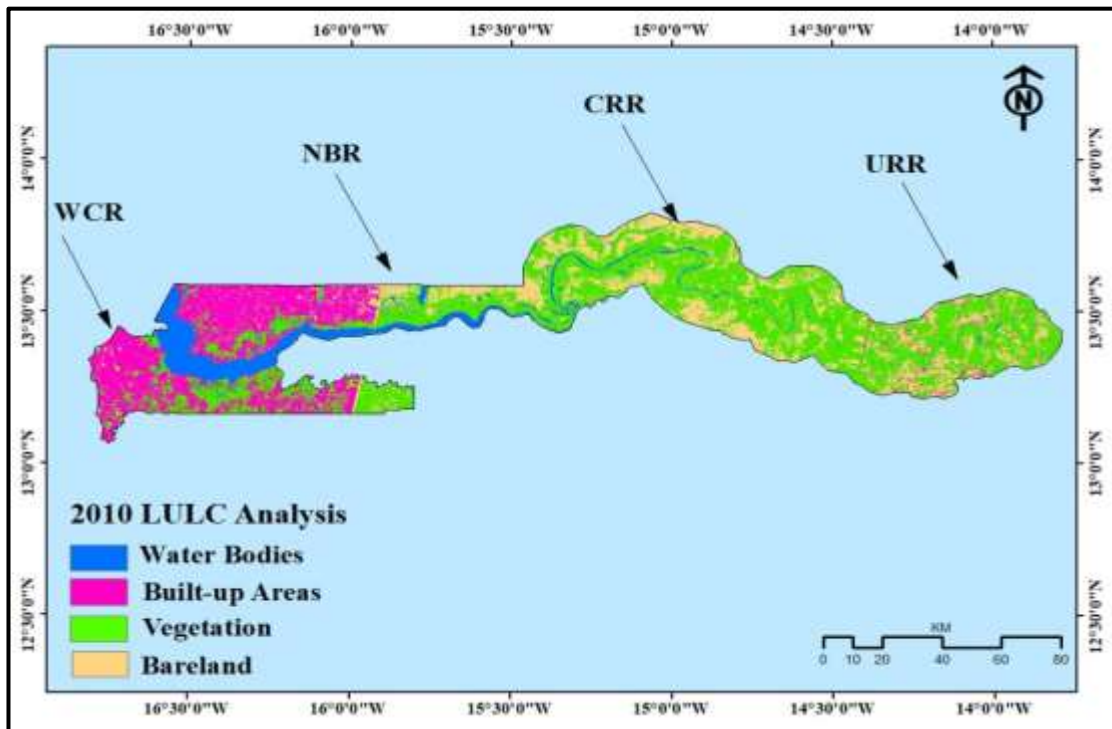
### C. 2000 Land Use and Land Cover Analysis

The analyzed satellite data showed four classes namely: water bodies; vegetation; built-up areas; and bare land. The water bodies had been increasing significantly from 1980 to 2010 (Figure 4.26).



**Figure 4. 28. LULC (2000)**  
Source (Author, 2023)

#### D. 2010 Land Use and Land Cover Analysis

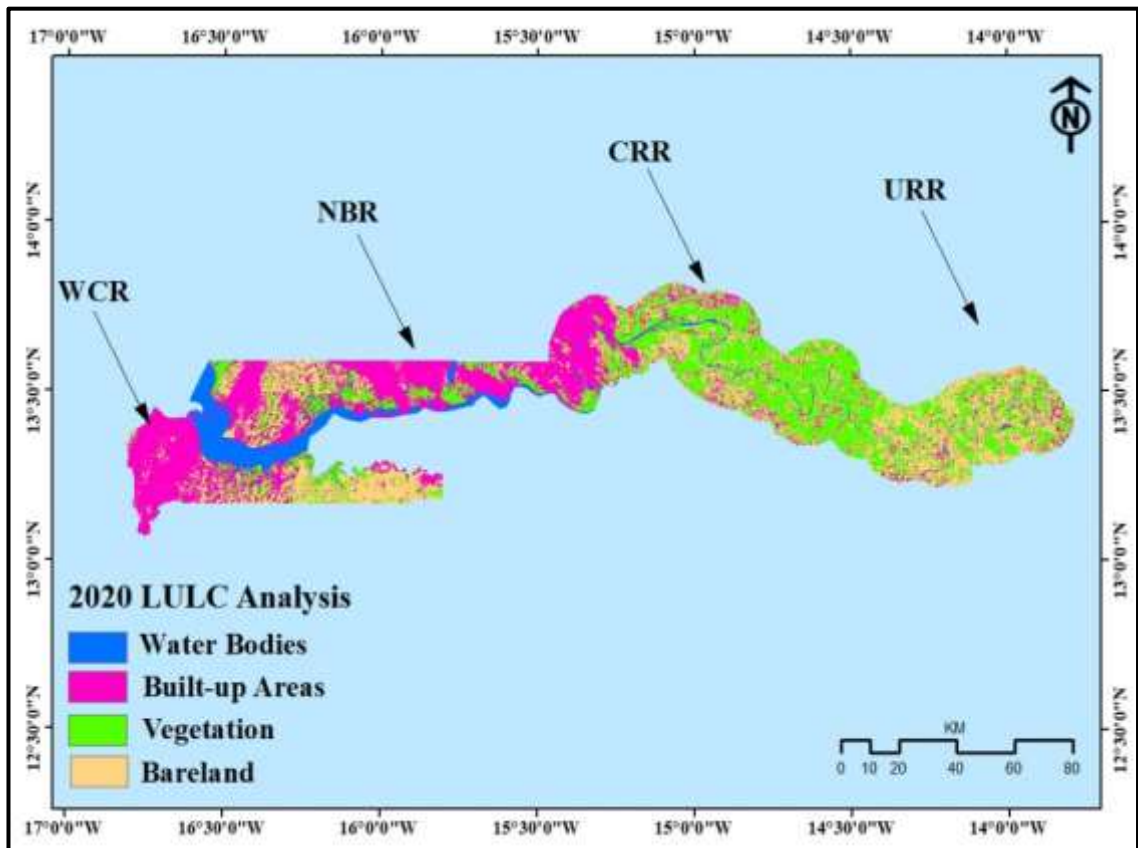


**Figure 4. 29. LULC (2010)**

**Source (Author, 2023)**

It represented 2% to 9% in 1980 to 2010 respectively. But there is a significant drop in 2020 to about 7.62% of the total land area the study site.

## E. 2010 Land Use and Land Cover Analysis



**Figure 4. 30. LULC (2020)**  
**Source (Author, 2023)**

The vegetation cover also witnessed a gradual increase from 1980 (12%) to 2010 (50%) before it dropped again to 32% of the total land area in 2020. The third component shown built up areas had a sharp rise from 1980 to 2020 except in 2010 when there was a slight dropped in the built-up areas with 21%. However, there is a sharp increased in this component by 2020 with 33% of the total land analysed. The fourth component (Bare land) which is a feature of drought had been reported as more serious in 1980 covering 83% of the entire area analysed. This is in tandem with the severe drought

**Table 4.4: Areas of LULC Analysis from 1980, 1990, 2000 2010 and 2020**

LULC Classes	1980 LULC Analysis			1990 LULC Analysis			2000 LULC Analysis			2010 LULC Analysis			2020 LULC Analysis		
	Pixel Counts	Area (km <sup>2</sup> )	%	Pixel Counts	Area (km <sup>2</sup> )	%	Pixel Counts	Area (km <sup>2</sup> )	%	Pixel Counts	Area (km <sup>2</sup> )	%	Pixel Counts	Area (km <sup>2</sup> )	%
<b>Water Bodies</b>	214567	193.1103	2.00%	823824	741.4416	7.62%	945830	851.247	8.75%	962147	865.9323	8.90%	821162	739.0458	7.62%
<b>Vegetation</b>	1318527	1186.6743	12.32%	4527068	4074.361	41.89%	5077375	4569.6375	46.99%	5355276	4819.7484	49.56%	3447600	3102.84	32.00%
<b>Built-up Areas</b>	273517	246.1653	2.56%	1801838	1621.65	16.67%	2431715	2188.5435	22.50%	2260753	2034.6777	20.92%	3535201	3181.6809	32.81%
<b>Bare land</b>	8894990	8005.491	83.12%	3653598	3288.23	33.81%	2351408	2116.2672	21.76%	2228153	2005.3377	20.62%	2969806	2672.8254	27.57%
<b>Total</b>	<b>10701601</b>	<b>9631.440</b>	<b>100.00%</b>	<b>10806328</b>	<b>9725.69</b>	<b>100.00%</b>	<b>1080632</b>	<b>9725.695</b>	<b>100.00%</b>	<b>1080632</b>	<b>9725.696</b>	<b>100.00%</b>	<b>10773769</b>	<b>9696.3921</b>	<b>100.00%</b>

reported in the Sahel region of West Africa in the 1980s. Since then, bare land had been reducing in the area to a low percentage of 21. Unfortunately, there is a significant rise of the bare land area in 2020 with 28%.

Generally, only the CRR had significant increase in its vegetation as displayed by the Landsat image of 2010. This is due to many residents of CRR migrating to the urban centers in WCR and Kanifing municipality leaving the ground unsettled. It is also due to many interventions by projects earmarked to restore the degraded lands by reforestation. The satellite imagery of the area studied has shown a strong correlation with the SPI results. Therefore, the two key variables flood and drought studied had led to a downward trend of agricultural productivity and induced migration of youths from farming communities.

This was corroborated by a study conducted from Fashiakhali forest reserve in Bangladesh that found agricultural land and grassland are mostly affected and lost due to the increase in the settlement area by approximately 1337.9 ha (Billah et al., 2021). From figure 4.27 the West Coast and North Bank regions were the most affected with land use and land cover change of 1990 to 2020 (Table 4.4). During these periods, most of the vegetation cover were turned into residential purpose that reduced the available land for agricultural activities. Many studies had it that if the vegetation is destroyed, it will serve as a catalyst for climate change and variability with its extreme events like drought and flood. Further studies indicated that at the local level, land use patterns and land cover changes contribute to systemic consequences, such as climate change, deforestation, land degradation, and environmental change (Gounaridis et al., 2018). Another research confirmed that anthropogenic activities such as agriculture, deforestation and urbanization

have been identified as the main drivers of land use and land cover change which affects the quality of water bodies and negatively impact agriculture (Olusola et al. 2018).

2000 Land use and land cover analysis of the four regions under study. The study assessed the relationship between migration due to failure in agricultural production and land use and land cover changes in the four regions. The land use change over the 40 years under study was assessed to determine its state which showed an interesting outcome. There was generally an increase in both settlements and bare land in mostly WCR and NBR (Table 4.4).

It was also evident that there was diminished in agricultural production and productivity over the 40-year period. Furthermore, the data from sampled population indicated a higher number of migrants during the last half of the study period and NBR with the highest number of migrants.

Correlation analyses between land use and land cover changes and decline in agricultural activities and production in the study area revealed that changing land use and land cover in the regions brought about a declined in farming and consequently, poverty, and migration became the most pursued option by the youths from the farming communities to improve their lives and livelihood opportunities.

#### 4.2.3. Data presentation on the problems faced by youths during migration journeys.

The illegal migrants endure innumerable and atrocious glitches along the journey from point of departure to final destination. Some of these problems are so terrifying that one would wonder what motivation keeps them going.

#### 4.2.3.1 Reliability test

For a research to be accepted for factor analysis method, it should have a reliability test score of at least 80% and this one had a score of 87% signifying an excellent score. Since, approaches to determine adequate sample size, commonly focus on statistical power, the study had fulfilled this criterion. Schmitt (2011), stated that “Generally, when adequate power is achieved, precision of parameter estimates will also be realized”. During the analyses of the data using the FA method, the appropriate number of factors were first determined. And then the sample size was evaluated for both the precision and power of parameter estimates. Finally rotated component matrix was ran to group the 31 problems asked to the respondents into five (5) factors, and the results can be seen on table 4.8.

In this study, the initial stage of all the statements was subjected to the Kaiser-Meyer-Olkin (KMO) test of sample adequacy and Barlett's test of sphericity to determine whether doing factor analysis was appropriate (Tabachnick and Fidell, 2001). The study's findings indicate that the sampling was enough and that factor analysis could be conducted because the KMO test obtained a value of 0.715 and the Bartlett's test is significant at 0.00. The outcome also shows how factorable the data matrices are (Hair et al., 1998).

**Table. 4.5 KMO and Bartlett Test**

<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.715
Bartlett's Test of Sphericity	Approx. Chi-Square	2022.954
	df	465
	Sig.	0

**Source (Author, 2023)**

The KMO and Bartlett's Test of Sphericity both indicate that the set of variables are at least adequately related for factor analysis. Essentially, this means that we have identified three clear patterns of response among the respondents (one pattern indicated socioeconomic related problems, another pattern relates to food factor and the final one deal with Sea crossing factor.) These three tendencies are independent of one another (that is, they are not correlated).

#### 4.2.3.2. Communalities

The term "communalities" refers to how much variance each variable in the study shares with other variables. According to Aaker et al. (1998), communalities is defined as the portion of a variable's variance that affects how other variables are correlated. The findings of the communalities, according to this study, range from 0.278 to 0.886 (Refer to table.4.2.3.3 for the variables). It is significant to note that a value of 0.5 and above is required for an item to obtain before it is accepted to be categorized in a factor.

**Table. 4.6 Communalities**

Communalities	Initial	Extraction
Illegal migrants keep their transaction in secret for fear of being spotted and prevented from embarking on the journey	1	0.278
Gathering of the required money to undertake the journey	1	0.435
Collecting the necessary information about the journey	1	0.404
Obtaining identification documents like passport, identity card, and birth certificate	1	0.619
Sleeping at hide out locations while waiting for transport	1	0.59
Restricted movements in and out for fear of being under surveillance	1	0.619
Poor condition of transport system endangering migrant's health	1	0.378
Immigration and other government officials in some countries extort monies from migrants by asking for bribes	1	0.688
They are pack together like sardines in congested transport system without proper ventilation	1	0.327
Migrants were forced to disembark their transport and sometimes put in custody or cells	1	0.575
Migrants monies are forcefully taken from them by terror groups	1	0.6
Illegal migrants are sometimes tortured, for instance beaten up and insulted by terror groups	1	0.611
In some cases, migrants die while crossing the Sahara Desert, consequently they are left unburied or given a semi burial	1	0.526
Youth migrants in some cases have to do temporary jobs to have some money to enable them continue their journey	1	0.746
They are also forced to do domestic jobs with no remuneration or pay	1	0.776
Some migrants are sexually harassed during their journeys	1	0.481

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Migrants are faced with food, water and medicine problems during their journeys	1	0.54
Migrants are sometimes arrested by terror groups and asked to pay certain amount of money or face imprisonment	1	0.509
Migrants are sometimes actually imprisoned and made to pay ransom to their captives	1	0.621
They occasionally are forced to reside in detention centers	1	0.393
Food scarcity was a problem for those onboard	1	0.877
Water was scarce leading to huge thirst for migrants in ships	1	0.886
Many became hungry and malnourished	1	0.791
Sometimes migrants get sick and die in ships, hence their corpses are drop in the sea	1	0.486
The journey was long and extremely difficult for members	1	0.571
Those onboard suffered multiple diseases on the ship	1	0.658
The weather was so harsh making life difficult for migrants	1	0.478
Strange wave sounds and other unrecognized sounds were heard threatening migrants onboard.	1	0.714
There are instances ships developed faults leading to drowning of migrants	1	0.731
Some members onboard were terrified and disrupted the smooth sailing of the ship	1	0.628
Illegal migrants reaching Europe are taken to detention camps as captives	1	0.473

Extraction Method: Principal Component Analysis.

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**Source (Author, 2023)**

4.2.3.3 Varimax Normalization

In this study, the variances of the squared normalized factor loadings across the variables for each factor are maximized using varimax rotation. Using the orthogonal

(varimax) rotation technique, the chosen variables were rotated. The factor pattern derived using varimax rotation is more invariant, according to Kaiser (1974). The total eigenvalue and the proportion of total variance would not be impacted as long as the rotation does not change the angle of any element. Only elements with a factor loading of at least 0.5 and above are thought to be significant according to the results of the rotated factor matrix. The five factors, which were called after the sub variables they fell under, have factor loadings that range from 0.531 to 0.928

#### 4.2.3.4 Eigenvalue Criteria

The variation in all the variables is displayed by the factor analysis's eigenvalue. Principal component analysis was used to extract data for this study's 5 components, which were socioeconomic, food safety, sea crossing, unawareness about the journey and health issues. There were thirty-one numerated (31) problems that were factor analyzed using principal component analysis with varimax (Oblique) rotation. The analysis generated the five named factors explaining 58.097% of the variances for the total set of variables. An eigenvalue larger than 1.0 is regarded as noteworthy, and a total variance of more than 50% is seen as satisfying. The aforementioned findings so demonstrated that the extracted components account for a specific amount of variance. The first 9 items fall under factor 1, which is labeled socio-economic factor and it explained 23.367% of the variance with an eigenvalue of 6.25; the second factor consist of 5 items that is categorized food safety, which explained 15.216% of the variance with an eigenvalue of 4.75; the third factor considered sea crossing with 5 items explained 7.552% of the variance and it had an eigenvalue of 2.25; the fourth factor unawareness about the journey with 4 items explained

6.457% of the variance; and finally the fifth factor classified as health issues with the lowest items of two and it explained 5.504% of the variance.

4.2.3.5. Factor analysis result of the rotated component matrix on the problems migrants encountered.

**Table 4.7. Factor Analysis**

Items	factor 1	factor 2	factor 3	factor 4	factor 5
Socioeconomic					
They are also forced to do domestic jobs with no remuneration or pay	0.859				
Youth migrants in some cases have to do temporary jobs to have some money to enable them continue their journey	0.823				
Immigration and other government officials in some countries outside The Gambia extort monies from youth migrants by asking for bribes	0.82				
Migrants are sometimes actually imprisoned and made to pay ransom to their captives	0.774				
Migrants monies are forcefully taken from them by terror groups	0.772				
Migrants were forced to disembark their transport and sometimes put in custody or cells	0.716				
It is common knowledge that migrants are sometimes arrested by terror groups and asked to pay certain amount of money or face imprisonment	0.705				
In some cases, migrants die while crossing the Sahara Desert, consequently they are left unburied or given a semi burial	0.674				
Some migrants are sexually harassed during their journeys	0.612				
variance (percent of explained)	<b>23.367</b>				
Food safety					
Water was scarce leading to huge thirst for migrants in ships		0.928			
Food scarcity was a problem for those onboard		0.921			
Many became hungry and malnourished		0.867			
The journey was long and extremely difficult for members		0.686			
variance (percent of explained)		<b>15.216</b>			
Sea crossing					
Those onboard suffered multiple diseases on the ship			0.782		

Strange wave sounds and other unrecognized sounds were heard threatening migrants onboard. Because these sounds make passengers fearful.	0.742	
There are instances ships developed faults leading to drowning of migrants	0.741	
Some members onboard were terrified and disrupted the smooth sailing of the ship	0.74	
Sometimes migrants get sick and die in ships, hence their corpses are drop in the sea	0.531	
variance (percent of explained)	<b>7.552</b>	
Unawareness about the journey		
Restricted movements in and out for fear of being under surveillance		0.72
Gathering of the required money to undertake the journey		0.622
Sleeping at hide out locations while waiting for transport		0.595
Collecting the necessary information about the journey		0.532
variance (percent of explained)	<b>6.457</b>	
Health issues		
Poor condition of transport system endangering migrant's health		0.588
Migrants are faced with food, water and medicine problems during their journeys		0.531
variance (percent of explained)		5.504
Total variance (percent of explained)		<b>58.097</b>

**Source (Author, 2023)**

As evident in the table, youth migrants had to engage in temporary jobs to gather money to enable them proceed on the perilous journey and in some cases, they are not paid for the jobs performed. These two had a greater score from the analyzed data. In contrast from the same factor, some migrants are sexually harassed during their journeys is the least problem respondents were faced with among all the 9 problems falling under factor 1. Nonetheless, it worth noting that these 9 problems values are all grouped under the umbrella of socio-economic factor respondents encountered while travelling on land from Gambia to Tripoli or Rabat. These two cities in Libya and Morocco respectively serve as

the points of departure through the Mediterranean Sea to Italy or Spain. These information from the migrants is corroborated by the FGDs and KIISs where a participant was quoted saying:

*'There is no lady that had taken the journey and reached Europe without being fucked by these personnel I named. But if you asked, they will deny it for how horrible it is. They will be shy to talk about it, but that is a hard fact. The migration agents locally called 'Cocksorr' will sleep with these ladies for a week to 2 months. On top of this, they must also pay cash for the crossing. If they delay it means you serve the agent more in bed since you will be living with them during your stay'.*

A former migrant explained his ordeal during the journey. He stated that their vehicle had a breakdown in a thick forest around Nigeria, and they spent four days eating plain cooked rice served on big leaves they removed from trees in the surrounding. Worst, they had to flee the scene when they were attacked by armed men with short guns firing at them. They ran helter-skelter in various directions in the forest till he escaped with a colleague. He said, *"you will hear 'taw-taw', signifying the sounds of gunfire and bullets raining on the trees and grasses"*.

Another parent in one of the FGDs explained that:

*"One night around 2 am, a Nigerian called me on the telephone and asked for twenty thousand dalasi that I should transfer to him immediately. If not, he will kill my brother whom they held hostage. He then fired a bullet twice, 'Paa-paa' and said you heard the sound of my gun. If you waste time your brother under our captive will be dead soon." He gave me the details of where to send the money and I had to rush to the Arab Gambia*

*Islamic Bank (AGIB) at Kairaba Avenue opposite the American Embassy. Because that was the only bank at the time where we can send money to the destination the captor asked for."*

The second factor whose values are referred to as the food safety factor since the 4 problems here are largely related to food problems. The worst problem migrants were faced with is water scarcity leading to huge thirst for migrants during their journeys, which was recorded with a high value of .928. Many respondents stated that their water will get finished and they will be suffering from thirst that will drain them severely. The second problem in this group is food scarcity that also registered a high value of .921 that led to many migrants becoming malnourished and exposed to poor health conditions.

The third factor's values also registered 5 items. This factor is termed sea crossing since the problems illegal migrants are faced with are related to the crossing of the Mediterranean Sea. The problem with highest value of .782 is those onboard suffered multiple diseases on the ship. The second problem that migrants grapple with is being infected with multiple of diseases, which sometimes cause their death onboard. There are instances their boats develop faults leading to drowning of migrants as many times seen in news outlets. Lastly, even though lowly ranked, sometimes migrants get sick and die in ships, hence their corpses are drop in the sea. With a value of .531, this problem had cost migrants daunting challenges.

The fourth factor is unawareness about the journey which registered four items: "restricted movements in and out for fear of being under surveillance; gathering of the required money to undertake the journey; sleeping at hide out locations while waiting for transport; and collecting the necessary information about the journey". Finally, the fifth

factor termed “Health issues” had only two items as follows: “Poor condition of transport system endangering migrant's health and “Migrants are faced with food, water and medicine problems during their journeys”. These had values of .588 and .531 respectively.

#### 4.2.3.6 Variance Explained

To gauge how much of the total variance is accounted for by the components, the percentage of variance explained is used. The percentage of variance explained statistics can be helpful in assessing and comprehending a factor. The variance explained is a summary measure indicating how much of the total original variation of all the variables in the factor are represented (Aaker et al., 1998). In this study, the total cumulative variance is 58.097 percent. Therefore, in this study, about 58% of the total variance is accounted and explained by 5 factors.

**Table 4.8. Variance Analysis**

<b>Dimension (Factors)</b>	<b>Variance (Percent explained)</b>
Socioeconomic	23.367
Food safety	15.216
Sea crossing	7.552
Unawareness about the journey	6.457
Health issues	5.504

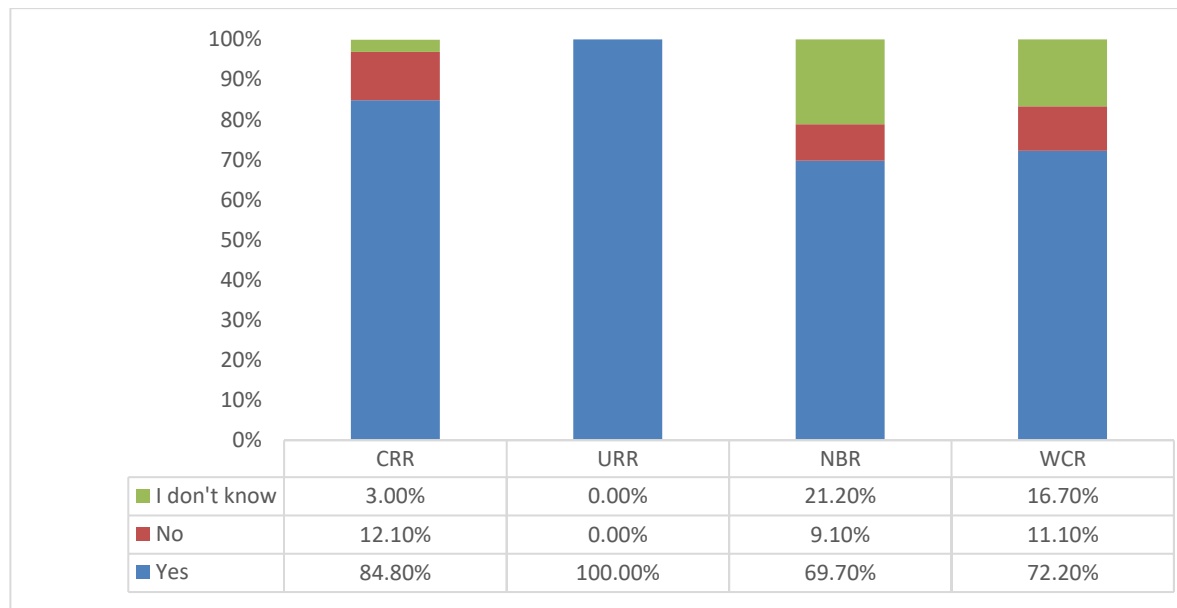
**Source (Author, 2023)**

4.2.4. Data presentation on the coping strategies espoused by illegal migrants during their perilous journey.

As evident in objective 3, illegal migrants endure numerous problems that stress their lives a great deal. Consequently, they had to seek some strategies to lessen the magnitude of the perils. Among these are the following:

4.2.4.1. Taking up part time jobs

They engage in part-time jobs along the route, especially in Libya. This is where many of them stay for long periods gathering money to pay for crossing the Mediterranean Sea to Europe. The data indicated that the majority of migrants do engage in part-time work, particularly in Libya, where most of them reach without a penny. Eighty-five per cent to 72% of respondents from CRR and WCR respectively had engaged in this strategy during their travels. Furthermore, 100% of those interviewed from URR confirmed they did some part-time work along the route.

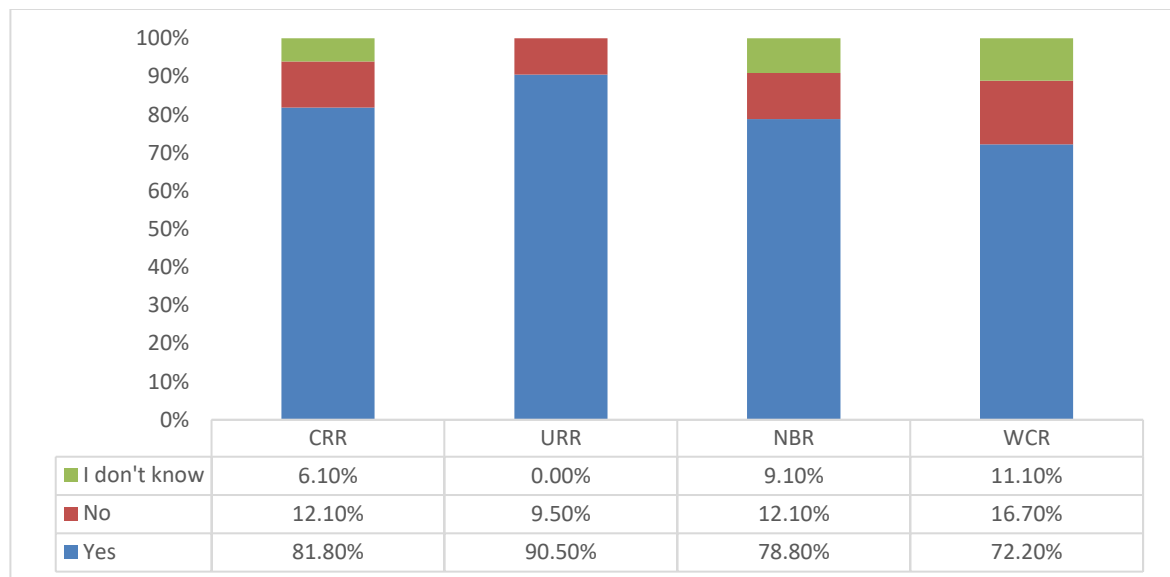


**Figure 4.31. Response from migrants’ engagement in part-time jobs**

Source (Author, 2023)

#### 4.2.4.2 Seeking money from family and friends

Another strategy migrant use as an adaptation measure is asking for money from their Parents, families and friends both in The Gambia and abroad. More than 72% of interviewees from all the regions had asked for money during their trip. The highest number asking for this support is from the URR, where about 91% of illegal migrants seek support. This is an ideal strategy for most migrants since many parents do not allow their children to embark on the journey, they generally leave incognito without much money. So, the moment they exit the territorial integrity of The Gambia, they start calling their parents to inform them about their trip and ask for money. This will prompt parents or friends to send them money to continue the trip.

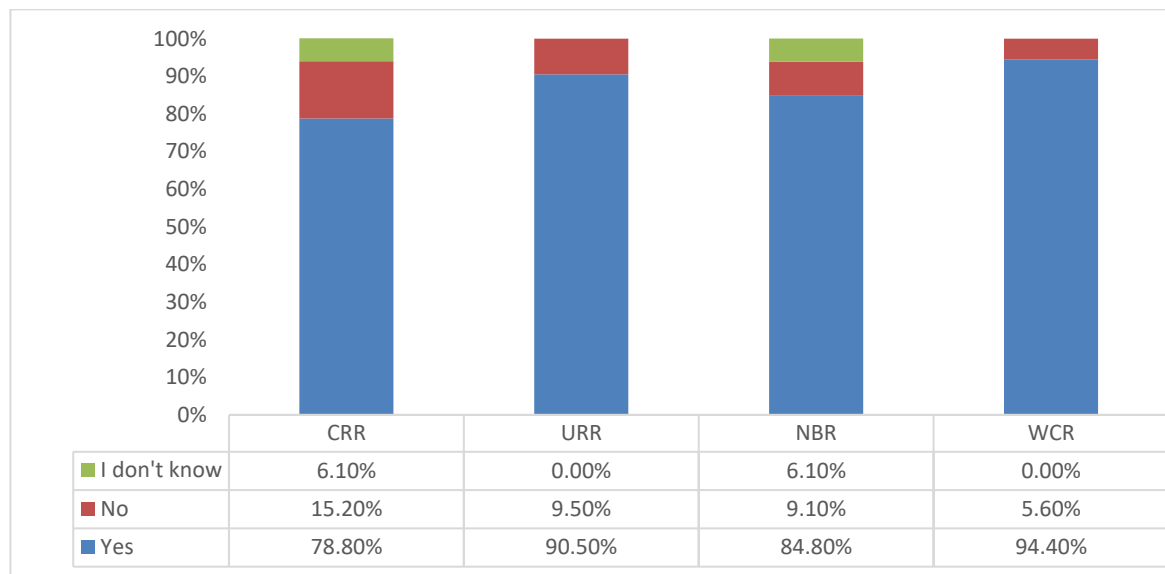


**Figure 4.32 Their request money from families and friends at home and abroad**

**Source (Author, 2023)**

#### 4.2.4.3. Selling of valuables cheaply for livelihood sustenance

There are instances where migrants have valuable materials with them when they start the journey. Some of these include smart mobile phones, watches, clothing, shoes and many others. They will resort to selling these valuables at cheap prices when they run out of cash. The little money they would make from it will be used to buy food, water, and transport fare from one destination to another. Figure 4.33 is showing evidence of the majority of respondents acknowledging these facts. Some interviewees informed the researcher that they reached Tripoli in Libya with only the clothes they had on. Their bags full of articles from home had all been sold at a giveaway price for food and water.



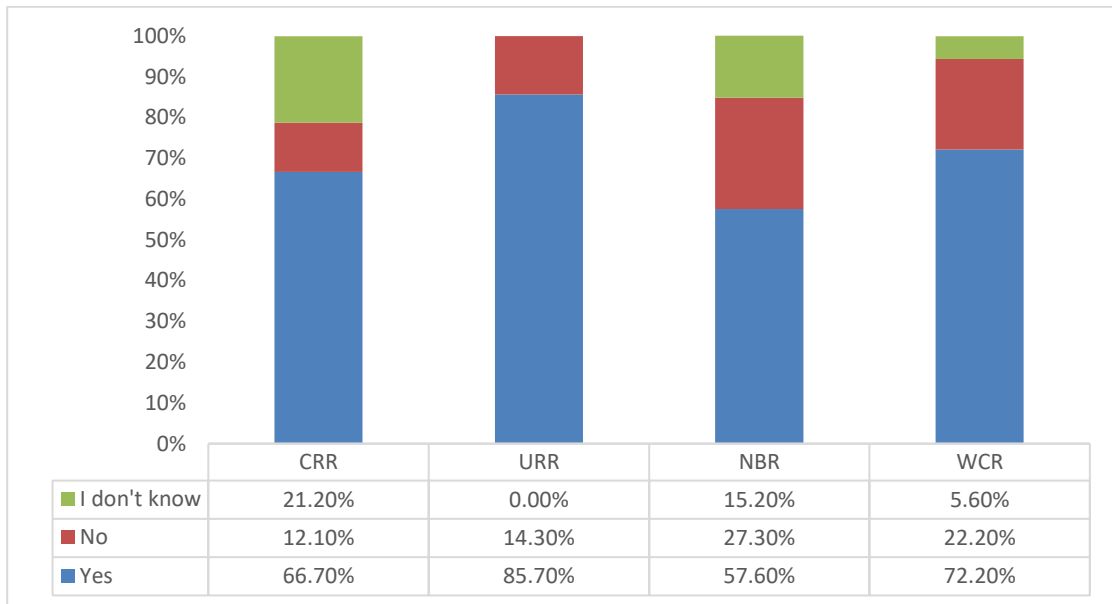
**Figure 4.33. Migrants selling their valuables cheaply for livelihood sustenance**

**Source (Author, 2023)**

#### 4.2.4.4. Engaging in illicit activities

Unfortunately, many migrants also confided with the researcher that some of them were used by North African gangs to sell drugs for them in Libya. Even those migrants

who never came in contact with hard drugs before were not spared in the trade. However, some of them were doing it voluntarily to make money and finance their second phase of the perilous journey. Others especially the ladies sometime engage in prostitutions.



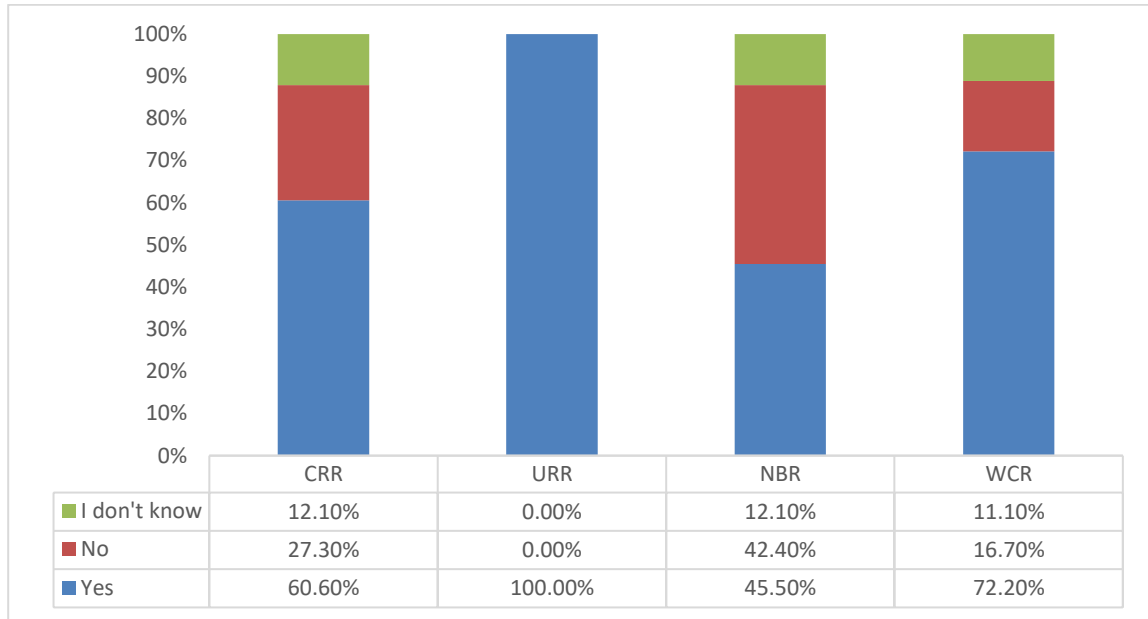
**Figure 4.34. Illegal migrants engage in illicit activities like drug dealing and prostitution**

**Source (Author, 2023)**

The approach that many migrants found hardly doing is to come together and rent a place to live in for short stays before proceeding to their next destination. This is because many of them are always in hiding and scattered around for security reasons. The suitable places where they could do so are in Libya or Morocco, where they could stay longer and have employment. Few of them are found staying together and sharing the rental fees to cut costs but this approach is limited. Because many of the migrants staying in the same place is always risky, since they will be easily noticed by criminals who would raid such places and take them hostage. These criminals will make them call their families back home to pay a ransom or they will threaten to kill them. Many Gambian participants in the

FGDs confirmed having received such calls and they had to transfer huge sums of money for the release of their loved ones.

#### 4.2.4.5. Many coming together to hire a temporal place for residence

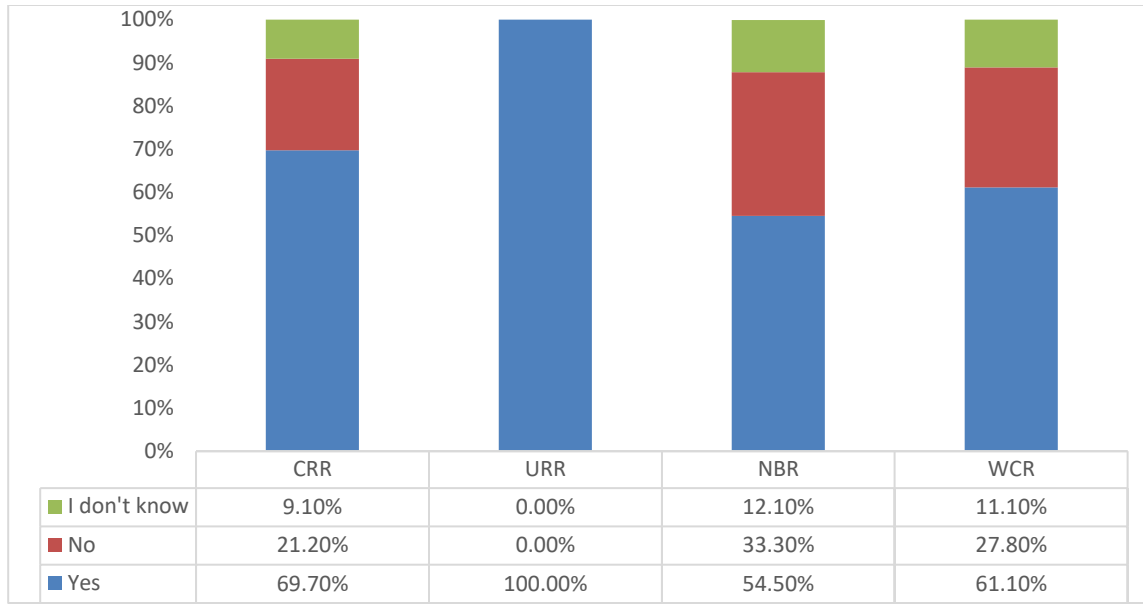


**Figure 4.35. Migrants coming together and hire a place to live temporary**

Source (Author, 2023)

#### 4.2.4.6 Sleeping in car parks or/and shantytowns

Since migrants are always on the move and had no idea of the places they are passing through, they mostly sleep in car parks and secret locations on the outskirts of residential areas. They are mostly hidden from the view of certain immigration posts, where immigration officials could send them back or keep them in cells. Consequently, it is difficult for illegal migrants to have ideal places to sleep in. All the respondents from URR indicated that they had to sleep in these uncomfortable places during their travels.



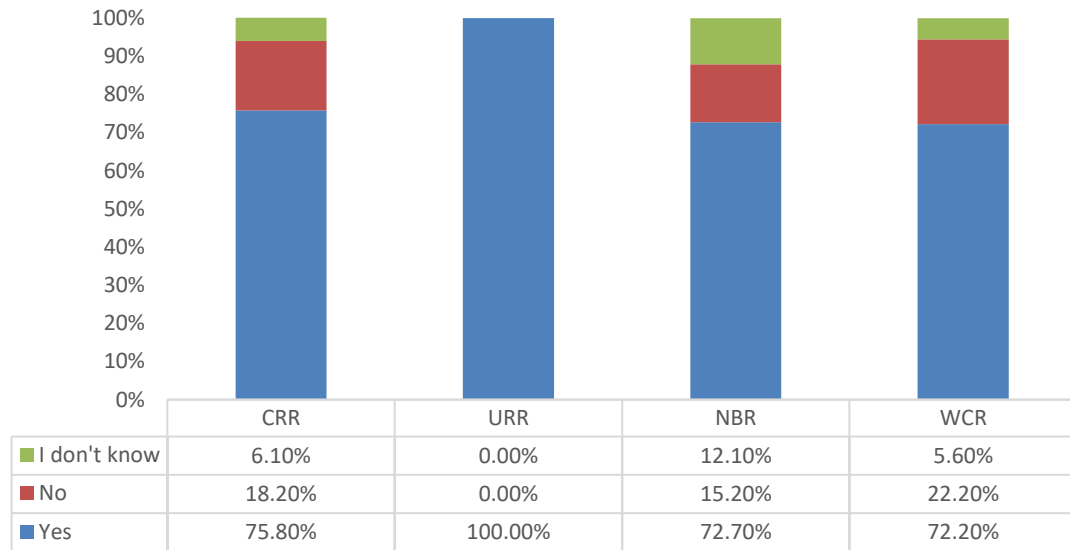
**Figure 4.36. Sleeping in car parks or/and shantytown**

**Source (Author, 2023)**

#### 4.2.4.7. Seeking support from agents/smugglers whom they trust

It is significant to note that many migrants' journeys are facilitated by migration agents. Some of these are Gambians, Senegalese, and North Africans. The agents are spread along the route from west African countries like Mali, Burkina Faso, and Niger and then to the North in Algeria, Morocco, Tunisia and Libya. They do chain work from one camp to another and mostly they work with service chiefs in the Police, and Military to aid the transportation of the migrants. The agent is also someone who had stayed long in the environment and can communicate in the language of the people on the ground like Arabic. Hence, migrants, most times rely on these agents for guidance and support. If they need to stay long at any destination waiting for funds from home, they stay in one of the camps under the protection of these agents. The agent also helps to facilitate communication between the migrant and the family or friend who should transfer sums of money for the

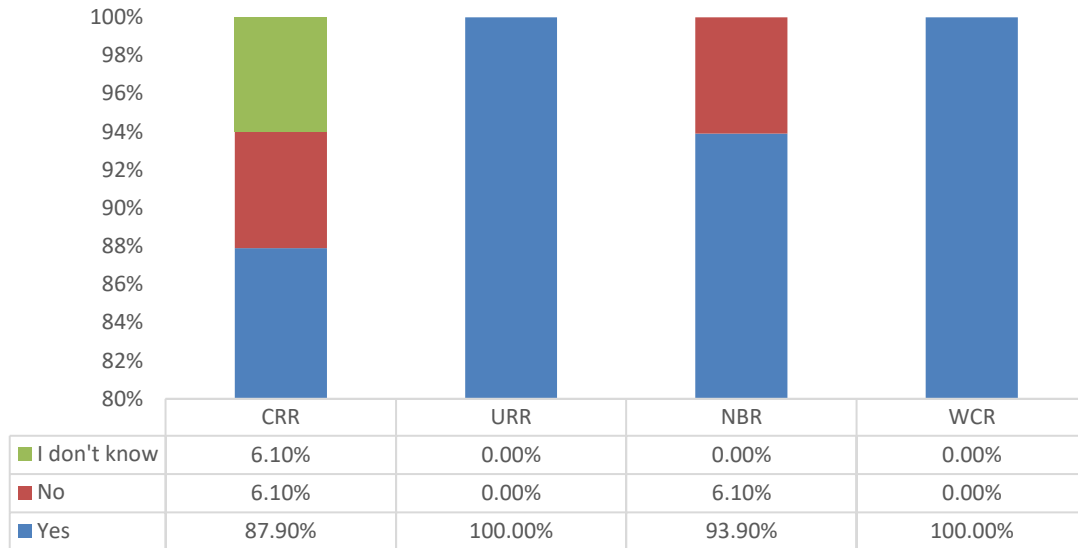
migrant. But the agents are making a great deal of money from the enterprise. And some migrants complained bitterly about how badly they were maltreated by some agents who absconded with their money.



**Figure 4.37. Seeking support from agents/smugglers whom they trust**  
**Source (Author, 2023)**

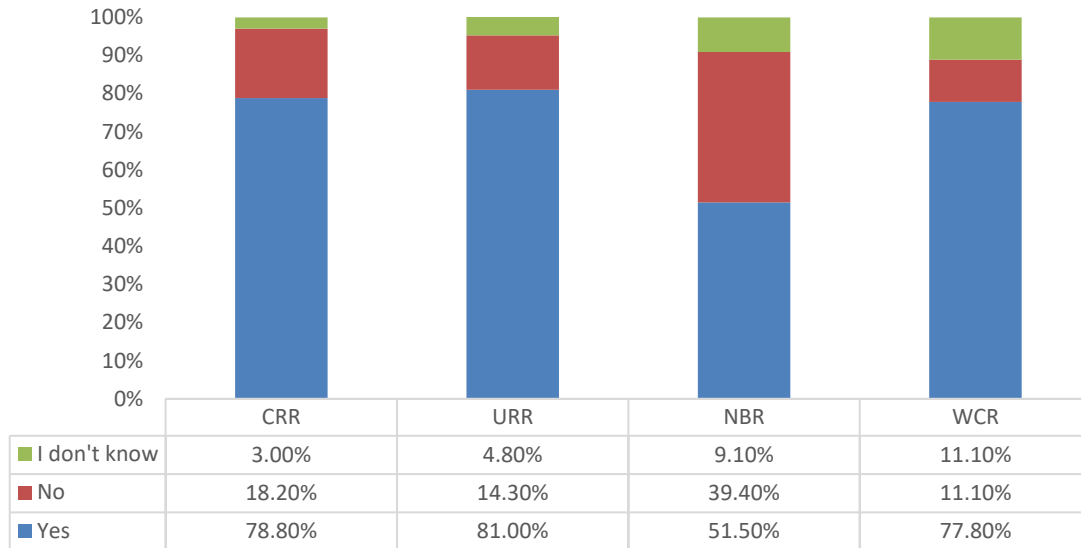
#### 4.2.4.8. Reduction of food and water intake to save the limited quantity

The most common approach migrants were doing throughout their journeys is to reduce their food and water intake. They knew it is not safe to be travelling in the Sahara Desert without water and food because the next settlement could be hundreds of kilometers away. They are not even sure if they could pass through the settlement since they are always trying to dodge official checkpoints. Therefore, from day one, they reduce the food and water they take. Some confirmed they eat once a day and only quench their throats when they are very thirsty. This resulted in all of them becoming different people when they arrived in Libya. They will lose a great deal of weight and become friable.



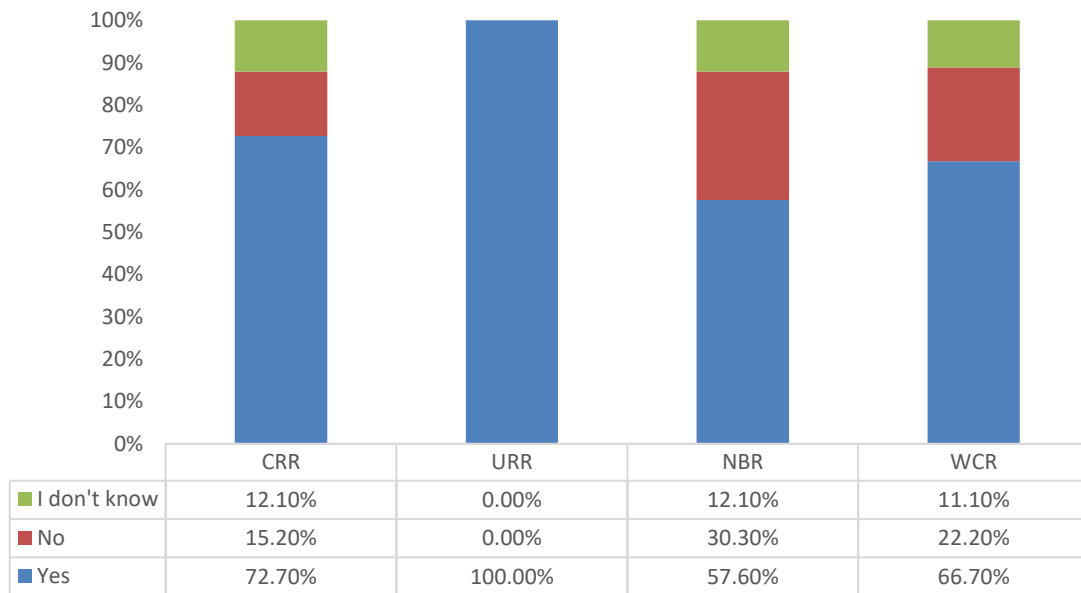
**Figure 4.38. Reduction of food and water intake to save the limited quantity**  
**Source (Author, 2023)**

Figures 4.39 and 4.40 portray the approaches the illegal migrants do to feed themselves. Sometimes it will help them to fill their stomachs for the first time after their hectic travels. There are instances these never work. For they will do dishwashing and help restaurant owners just to be given some food or eat the remnants from customers' plates. But some owners will not give them food, nor allow them to eat the remnants. They will dispose of the leftovers in bins or take them away from their sight. Those who are employed for few days are also denied any payment



**Figure 4.39. Migrants going around begging for food from vendors**

Source (Author, 2023)



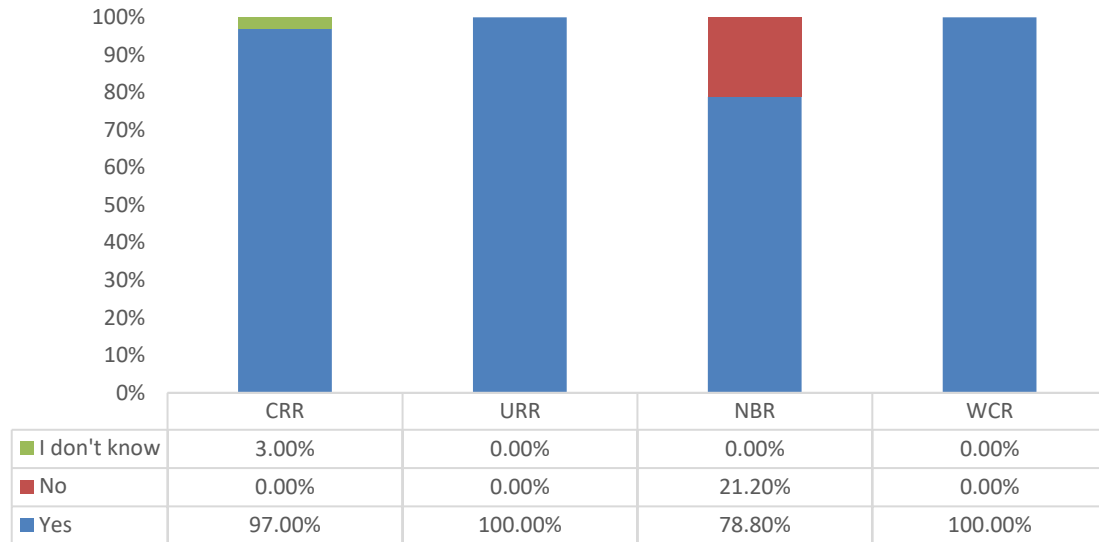
**Figure 4.40. Does doing domestic jobs in restaurants to get food to eat**

Source (Author, 2023)

To enable those migrating with money to keep their cash safely, they had to keep it in very unpleasant conditions. As indicated by figure 4.41, some will place it in their underwear, shoe sole, shocks and bra for ladies. One hundred per cent of interviewees in URR and WCR had used this strategy during their journey. Similarly, 97 and 79 per cent of the respondents from CRR and NBR did it as well. These are all meant to keep it from the sight of criminals along the journey and immigration officials who keep taking it away from them. But this strategy is getting harder each day because the criminals are always learning about any new development by the migrants.

An agent confirmed one migrant reached Niger in his camp and when he took out the money from his shoe sole, it had been destroyed. The figures and colour on the notes had debauched beyond recognition. The money was a huge sum that the young man wanted to use for travel and feeding to reach Libya.

These are the most widely used strategies by migrants to keep them moving from the point of departure to the final destination. Though with many challenges, but they are helping many of them to finally arrive at the beginning of the second phase of their perilous trips to Europe. This is the place where they take a boat to cross the Mediterranean Sea to Europe finally.



**Figure 4.41. Hiding monies in secret parts of their bodies**

**Source (Author, 2023)**

4.2.5 Data presentation on measures taken by the government, civil society groups and other organized institutions to address illegal migration of Youths.

#### 4.2.5.1 Thematic analysis

Thematic analysis of the data collected from 12 KII and 80 FGD participants adopted the six-steps framework of Braun and Clarke (2006) and Clarke *et al.* (2019). The framework is based on the following steps: Familiarizing with the data; generating initial codes; searching for themes; reviewing themes; defining and naming themes; and finally producing the report.

The data was first transcribed, read and initial ideas noted. Secondly, it was coded based on interesting features and collated accordingly. Thirdly, it was arranged into themes that are related. Fourthly, the themes were checked whether they are compatible. Fifthly,

they were refined and given names as necessary. Finally, the report was produced in a scholarly manner. The analysis of the data indicated the following 5 broad themes.

**Table 4.9.** The five themes obtained from the thematic analysis of the KIIs and FGDs

<b>Theme</b>	<b>Name</b>	<b>Institution</b>
1	Creation of a Directorate and NCMM to address Migration issues	Government Ministries
2	Sensitization	Government, Civil Society Organization (CSOs) and NGOs
3	Provision of logistics	Government and NGOs
4	Establishment of skill training centers	Government, NGOs and development partners, CSOs
5	New regime replacing the Jammeh government	Citizens of The Gambia

**Source (Author, 2023)**

The Gambia government and its development partners are engaged in various strategies to address illegal migration of the country's youths. As a government, a whole directorate has been created at the Ministry of Foreign affairs to address the issues of irregular migration. As it is the government's responsibility to create a conducive environment for the youths to bank on. The government has revisited the labor act to guide migrants to make sure their routes are safe, regular and protected. Because the migrants are sending remittances back home that is good for their families and the country by extension.

## **Theme 1**

It had established another division called the National Coordination Mechanism on Migration (NCMM) to design policies that are earmarked for conducive, safe and reliable outlets for migrants. The NCMM has 8 thematic areas that are guiding various departments and institutions as well as European partners in addressing the issues around migration. This will make migrants highly protected and ensure their passage is safe and secure.

## **Theme 2**

Sensitization is another key strategy identified and pursued by the Government and its partners. It ensures that migrants are well-sensitized about the journeys they undertake since it is a right for them to migrate and migration cannot also be stopped completely. The Youth Against Irregular Migration (YAIM) is one of the groups initiated by returnees that is vigorous raising awareness in the country on migration. It is being supported with funding from IOM, EU and other donors. IOM is also giving some money to returnees to use as startup capital.

## **Theme 3**

The European Union (EU) to be specific Italy Government is supporting the government with logistics like providing it with vehicles for the immigration department. These officials patrol the borderline of the country to trace, meet and counsel potential migrants and sensitize the communities at the grassroots about the dangers of the 'back way'. They also help reuniting the traced would be migrants with family members, especially minors. The immigration officers are also train on how to track and trace migrants by The EU partners.

#### **Theme 4**

The government in partnership with other international institutions had come up with projects to support the youths. One of the projects is the Youths Enterprise Program (YEP) that creates enabling environment for sustaining livelihoods. Some of the projects established skill centers to train youths on various entrepreneurship. The Renewable Energy Potentials' of The Gambia (RepGAM) funded by the German Ministry of Education and Research (BMBF) and implemented by WASCAL – UTG Office is one key example. It is building the skills of many potential youth migrants on solar installation and electricity cabling.

The youths trained with skills are staying and working, hence if they were not trained, probably some of them would have gone by now. Even though migration cannot be stopped but if there are opportunities many of them would stay and work here. There is irregular migration still but it would have been worst if the activities stated were not there. Hence, the activities of the Government and international partners plus other groups have impacted the curtailing of irregular migration of the youths of this country.

#### **Theme 5**

In 2016, the registered voters of The Gambia voted massively against its former leader (Yahya Jammeh) who was regarded as a dictator by many (both Gambians and non-Gambians). His long stay in power was regarded as one of the reasons why many citizens especially the youths were leaving for the perilous journey. And the West was allowing many of the youths leaving to seek asylum in Europe and the United States. The defeat of Yahya in the December 2016 election and restoration of a democracy by the Coalition

government was seen as another positive step in curtailing the illegal migration of the country's youths. Because it was believed that many youths had hope that the new Government will restore democracy, good governance and propel economic development for the betterment of the youths. Hence, many of those who were stranded in Libya and other places returned home immediately after the political impasse in January 2017. The foregoing had been supported by the Ministry of Foreign Affairs in Banjul.

#### 4.3 Discussion of Findings

The purpose of this section is to discuss the findings of the study by synthesizing data from this chapter, and the critical literature in Chapter 2. The aim is to create coherence between findings from the study and the literature. The discussion, therefore, constitutes a critical reflection upon the issues and debates raised through the analysis of the data. In the process, the author reflected on each research question one after the other. The data collected portrayed a significant relationship between climate variability and illegal migration of The Gambia's youths. This is evident in all the four regions but more pronounced in CRR and NBR as opposed to URR and WCR. It could be attributed to the former two being drier than the latter. Hence, drought is more pronounced in NBR and CRR, thus causing more devastation in agricultural production.

##### 4.3.1 Perception and causes of migration in the study area.

The data showed 66% of the respondents attributed the illegal migration of the youths as environmentally induced. This is because most activities of the farmers are dependent on the environment through farming for their economic prowess and feeding. And these farming is basically dependable on rain-fed agriculture. Consequently, if the climate variables like precipitation and temperature is impacted by climate change or

variability then the farmers' productivities will be affected seriously. Virtually every area of the rural economy is impacted by climate change, which also has significant effects on national economies (Filho et al., 2023). These were the exact problems found out during the research in all the regions studied.

This is substantiated by the Key Informants Interviews (KIIs) and all the Focus Group Discussions (FGDs) in the regions. According to the interviewees, the main reason pushing the youths to take the perilous journey is poverty caused by myriad of subjects. Some of these are natural and related to the environmental conditions like poor and erratic rainfall, increasing temperatures, poor soil quality to name but a few. Respondent number 4 in one of the FGDs stated that:

*“The poor nature of the soils and many other climate extreme events like drought, flood and windstorm are impacting the agricultural production that we heavily rely on for feeding and economic growth. There is no forest and the soils are deteriorating day in and out. The thick forest we use to have is bare and open soil with no vegetation. These problems are a catalyst to make the youths look elsewhere to improve their living standards and that of their Parents and families”.*

The information is corroborated by Hummel and Liehr (2015) who confirmed that complex and interconnected environmental changes like droughts and floods, overexploitation of resources and climate change are contributing features to rural–urban and recurring mobility within countries and across borders in the subregion. Migration is one strategy used to increase livelihoods and reduce risks in the Western Sahel including The Gambia, particularly in light of uncertain agricultural returns.

The respondent further compared the earnings of a farmer in NBR and another in Casamance in Senegal with the same input. The participant claimed the one in Casamance will have double output or more because there is thick forest and the soil is fertile. Another problem associated to the failure of agricultural productivity is a market opportunity for those producing crops. He spoke of how he used to produce onions and groundnuts in Senegal. But the market was there for the onions.

*“Coming back to The Gambia is a different case altogether. One will produce many things but marketing becomes very difficult. The prices paid for the product is also very poor and transporting the product to any market is also costly and a big burden”.* Said another interviewee.

The illegal migration of the youths is conditional because many of them are distressed and they have no means of livelihood or living. Many of the youths are not skillful and they have fewer means of survival. They mostly rely on farming, herding and harvesting raw materials from the forest to make a living. These activities are seriously threatened by the adverse effects of climate change and variability because their livelihoods are solely relying on rain-fed agriculture. Climate change has fashioned all these problems associated with poor farming. It is resulting in low and erratic rainfall, high temperatures and infertile soils that do not support sustainable crop production. Consequently, they have fewer options to become successful apart from risking their lives on the perilous journey. Since farming and animal rearing are the only career of the youths in most of these rural communities, they will surely risk their lives to look for better options.

Both the FGD in CRR-N and NBR confirmed at present, the soils are infertile due to intense heat from the sun and the lack of trees on the land. The problems of soil infertility are a result of no vegetation cover on the land. This exposes the land to intense heat from the sun and wind erosion in addition to the heat. Therefore, the soil is dead and cannot support farming anymore, especially without fertilizer. The early clearing of land for farming is a big problem since it will deny domestic animals the opportunity to feed on the dry grasses and coos stalks as fodder.

A vast area in the country is occupied by farmlands and settlements, denying the animals a place to graze. The evidence of which is clearly shown by the GIS analysis in chapter 4 data presentation. It is important to note that cows are one of the most important things we have in addressing our livelihood and economic growth. The only time the usefulness of the cow ends is when it is slaughtered. The cow can give you milk, fertilizer, meat, and so on just to name a few. The cows are not given the necessary attention by the Government, which should not be. No wonder, their number is diminishing and it is seriously affecting our lives and means of living. Consequently, the youths who see no future in this sector and agricultural activities as a whole are taking up the perilous journey as an alternative. This must happen because they are ambitious and determined to improve their status in society.

Refusal of visa issuance by European countries is the main reason driving the youths to engage in irregular migration. They will reject you outright for suspecting the youths will not come back but would remain in Europe. Europeans came here freely and took Gambians to build their economy and send them back to Africa, then introduce visas to limit the youths going to their countries. The youths will not accept it; hence they will

use all means available to travel to Europe. Furthermore, the international fishing trawlers from Europe and China as well as Senegalese are making it hard for our Gambian fishermen to earn a living through fishing. These are problems reported by FGD in Barra where most of the residents are fishermen. An interviewee disclosed that: *“Fishermen will build their boats and buy fuel, go to sea and come back empty-handed. The fishing we use to do in this country is no more sustainable because we not seeing the big fish we use to have in our waters.”*

In addition to the ambitious nature of the youths and courage, parents and society in general encourage and influence the youths to take up the journey. Society's disregard for the status or role that people in the home perform daily in the sustenance of the family. Many people in society give less consideration to those staying at home and providing for the daily needs of family members, but highly recognize the small efforts done by those outside the country or elsewhere. Even if the one outside sends money once that may not be a quarter of what the one at home contributes, he is still considered more valuable than his counterpart at home. As a result, many would choose to go away (specifically to Europe) at all costs, because everyone wants to be recognized in society.

According to the data collected during the field work, the inadequate job opportunities for the youths and school graduates to make them earn a living is pushing youths out of the country. Youths would feel very bad to stay without a job to pay back what their parents invested in them. Each person wants to take up the responsibility of their parents who raised them and are getting old. If there were jobs that can pay well to enable the youths to earn a living, many would not have taken the 'back way'. Interviewee number 5 in Basse cited an example of the road construction projects in URR 3 years ago. He said:

*"When the Chinese came to construct the roads in this region, you will not have any youth to do laborer work for you. Because they were all employed by the Chinese and paid better. It raised the value of payment for a laborer job from D150 to D250 per day".*

Another respondent stated that he was always in touch with a friend who left for the 'back way.' The youngster faced numerous tragedies in Libya like imprisonment, hard labor without pay and a boat wreck while attempting to cross the Mediterranean Sea. He asked him to return home after his release from prison but the guy said "Never". He prefers to die there than return home empty-handed because he has no hope for a better life in The Gambia.

Education is inadequate for many Gambian youths too. This is making it hard for our youths and one FGD participant cited Rwanda as an example of countries that had invested in education heavily, which is paying dividends today. There are no or less Rwandese taking the perilous journey to Europe. Their level of education is very high and they are productive in society. This is what we lack in this country. If the youths are not skilled, they will not excel in the world market and it will delay their employability or make it impossible for them. Knowledge is vital in all that we do. It will enable us know how to prepare the ground for better farming, and anything you want to venture into you needs the knowledge on how to excel in it.

The problem of job segregation and undervaluing by society is denying many youths gainful employment. Society does not respect people who do skillful jobs like carpentry, welding, painting and masonry just to name a few. Besides, there are few skill centers in this country. Age limitation for many tertiary institutions asks for those between the ages of 15 and 35 years. These are limiting the opportunity for those above 35 years.

He further stated that those below 35 years are young and they hardly have a vision. However, those above 35 are the people who have a vision and can decide what they want as a profession. If these are denied enrolling into a skill center and they have no other means of making money, they will surely take up the 'back way' journey as an alternative.

Political issues also contributed to the migration of a few because the former regime was considered to be dictatorial and some people were at risk of being arrested. These concerned people also took the backway journey. Some of these were soldiers and police officers. Some consider the meagre nature of the salary they receive monthly as a push factor. Because it does not solve their basic needs like feeding and health.

Generally, an increase in population is a contributing factor to the acceleration of the illegal migration of The Gambia's youths. The increase in number has inflicted pressure on the land and environmental resources. Therefore, the livelihood support systems of the people are strained and it induced poverty in them. Consequently, many of the active population especially the youths had to look elsewhere for more opportunities. And fortunately, or unfortunately, the 'backway' has become a famous option for many of them.

#### 4.3.2 Effects of flood and drought on illegal migration in the study area

The data presented had clearly showed many climate extreme events impacting the agricultural production and productivity over the years under study. Both flood and drought are pronounced in the regions studied in different ways. Broadly, there is an increase in precipitation for the regions studied over the period in contrast to what most participants in the survey reported. The precipitation data which is more scientific confirmed a positive trend for the country's wet seasons. Consequently, one could infer

that climate variability is affecting the farmers more than climate change. This led to the erratic and unpredictable nature of rainfalls, thus making farmers' activities fail in most cases just like they reported. The URR and WCR and found to be more affected with flood events whereas NBR and CRR are mainly inflicted with meteorological drought.

The data garnered had disclosed that many parts of the country are inflicted with dry spells that are making farming difficult for those engaged in it. Sylla et al. (2016), posited that an increase in dry-spell length of 30–50 % compared to the 1976–2005 baseline period is expected in some West African countries such as Senegal, Guinea, Sierra Leone, Mauritania, Mali, Burkina Faso, Nigeria, and Cote d'Ivoire. The findings are supported by other studies that confirmed recent climate change simulations and models predict that extreme occurrences will occur more frequently in the future (IPCC et al., 2022). This is also observed by the FGDs participants in all the regions of the country. Therefore, the youths who hailed from the farming communities had lost hope in agriculture and taking up illegal migration as an adaptation strategy to improve their livelihoods' opportunities. This is supported by Mpandeli et al. (2020) who wrote that "In response to the undesirable impacts of climate change, migration also is already increasing and is likely to continue becoming more frequent in the affected countries". Furthermore, it has been observed that increased incidence of natural adversities and extreme weather events such as flash floods, droughts, storms and cyclones has so far occasioned in the involuntary displacement of more than 17 million people since 2008 (Leal Filho, Olaniyan, & Nagle Alverio, 2022). In a similar study carried out in Kenya, Herrero et al. (2010) found that climate change adversely affected small-scale farmers through recurrent droughts just like what this study concluded. Therefore, it is anticipated that a continuous recurrent of

drought and flood will exacerbate the already existing illegal migration of the country's youths.

#### 4.3.3 The problems faced by youths during their migration journeys.

The data displayed on table 4.8 showcase the compounding problems that migrant youths encounter through the perilous journeys. These thirty-one problems identified were grouped into five main factors based on the Principal Component Analysis (PCA). Like many studies elsewhere, the first factor (Socio-economic) contained most problems migrants faced.

Many studies reported that in practice, migrants remain vulnerable to legal and human rights abuse, violations, poverty and social exclusion, as they lack the legal and administrative remedies to defend their rights (Karagueuzian, Verdier-chouchane, & Kayizzi-mugerwa, 2014). It is worth noting that many papers written on the subject failed to capture the problems illegal migrants grapple with. Instead they discuss only the problems irregular migrants induce in destination countries. The Key informants and FGDs expounded glowingly on the matter as follow:

The first problem youth migrants encountered during their journeys is a language barrier. Soon as they enter the Mali Republic, for example, they will be meeting people who cannot understand a word they speak and vice versa. Thus, communication becomes a big problem and some will resort to using sign language and so on. This makes it challenging for them to get what they want. Migrants will equally be disconnected from family back home since most of them will be without telephones. If they need money, they

seek assistance from the foreign nationals they meet. In many cases, if their family send money from home, it is received by these foreign nationals, and many a time, they will abscond with the money.

Another problem found in the study is hunger, even if one has money, it is difficult to see food that one can buy while moving because mostly migrants hide from security checkpoints and marketplaces. Therefore, hunger is a delinquent that every 'backway' youth encounter during the journey. Some will be so hungry that their natural look changes to something else. They will be so drained that you can count the number of ribs they have if not covered in a shirt.

The biggest challenge they have is money because they will finish all the one, they left with. If a migrant has money, keeping it safe is another challenge, because are searched thoroughly at checkpoints and by bandits while travelling. If money is seen with them it is taken away. One agent stated:

*Migrants keep their monies at very secretive places in them so much that it will be unusable after arrival at destinations. Some will keep the money attached to their private parts. And there is this young man who kept CFA francs worth about ten thousand Gambian dalasi in his shoe sole, when he arrived, he took it out and we realized it was completely deformed and no trader was accepting it. So, we asked him to try the banks if they will accept to change it for him. This is all due to fear of the money being taken away by bandits or security checkpoint officers.*

The migrants go through a lot of hardships. Their fundamental human rights are violated, by human trafficking, imprisonment, and exploitation by bandits and security

personnel along the journey. They are arrested and taken to the middle of deserts and dumped down there. Some migrants are found dead in the Sahara Desert. Their rights are violated at all times from day one till they reach Europe. There are many detention centers where they are imprisoned. Migrants are subjected to trafficking and all forms of abuse in North African countries. These serious traumas they endure make many of them suffer from psychological disorders. At worst they become mad and even after being returned, they remain mad people in the streets. Some are shot at around borders of countries like Mauritania, Libya and Niger. Others are also reported missing and about 11,000 Gambian migrants are reported missing as of 27<sup>th</sup> July 2022 (This is a report given by a Government official whose identity is protected for ethical reason). One of the key informants explained that ladies taking the perilous journey are raped by bandits and the migration agents before they are allowed to cross the sea to Italy.

Since bandits would attack migrants if they are not escorted, agents usually pay Nigerien soldiers to escort migrants' vehicles across the Sahara Desert to the Libyan border. Migrants are sometimes covered with tents or other materials to prevent officials at checkpoints from spotting them. Hence, they are transported in abysmal conditions. They also pay huge amounts of money for the necessary transactions before they arrive at Libya's crossing point to Europe. At the crossing point in Libya, the Libyan agents would be senior soldiers or police officers who could facilitate the transportation of migrants on boats ordained for Italy.

There are some cases where migrants are used by Mafia groups in the Arab countries to sell drugs like 'Hasis' which is a chancy scheme. Some migrants are also given jobs in Libya to work in the construction industries like buildings. Unfortunately, few will

work for months and the contractor will sack and refuse to pay them for the job they did. One Migration agent stated:

*"I worked as a laborer in the building industry for 3 months. When I asked the contractor for my pay, he sacked me and refuse to pay a penny. I could not do anything other than leave for somewhere because if one insists on asking, he will do the usual".*

When he was asked to elaborate on what he meant by "the usual"? He said: *"To go into his room and come out with a gun to point at me, threatening to shoot at me if I continue asking for the money"*. This is how difficult it is for many illegal migrants working in Libya to make money for payment of boats for their crossing to Italy are treated.

There are instances where migrants are denied eating enough food at the detention camps because it will make them use the toilets frequently and easily fill them up. Interestingly, if a migrant reaches the camp where they wait for crossing the sea, they are not allowed to withdraw from the journey again even if they wanted to. They may inform other potential migrants about the hardship, which may lead them to back out. If that happens it will affect the migration agents' businesses in Libya.

Getting suitable and right information about the journey is another challenge. This would have helped in the planning of the journey but it is always not available. Therefore, those going always take a risk in embarking on the perilous journey. They do not have the right information about the trip and drivers will charge migrants exorbitant money for transport. He will transport them after payment at night by going around and about in the same city or take them to another town and ask them to wait there till he brings others to join. After dropping them he will never show up again. One of the agents interviewed

named this problem to be the catalyst that prompted him to take up the responsibility to be an agent. The number of years he lived in North Africa prepared him well for the job. He knew the region, can speak Arabic and understood the system of the 'backway'. He felt the need to participate in the activity to assist his fellow Gambians who are subjected to the tribulations of other agents on top of the money he will make in the enterprise. However, many migrants and their families back home complained about the disappointment that the agents caused migrants. They ask for money from the parents of migrants to help migrants proceed on the journey from one stage to another, and after paying some are never reached online again.

#### 4.3.4 Coping strategies espoused by illegal migrants during their perilous journey.

The analyzed data had confirmed numerous strategies adopted by illegal migrants to cope with their perils along the journey. Interestingly, Gambians are found to stick together during the journey to give a moral boost to each other throughout the journey. They also support one another in any way possible, no matter where they come from or which ethnic group they belong to. In few cases they also engage in drug dealing to make money while on the route.

The main activities the migrants resort to are many and diverse and these are clearly explained in the data presentation section of this chapter from figure 4.31 to 4.41. Some engage in part time jobs especially when they reach Libya before they can pay to cross the Mediterranean Sea to Europe. There are instances many of the skillful ones stay longer in Libya because they could be employed and paid good money. Others seek support from their families and friends both back home and abroad. There are few who engaged in other

vices such as drug dealing and prostitution to earn a living and pay for their crossing of the Sea to their desired destination.

Few women among the migrants were forced to engage in illegal sexual activities with North African gangs, migration agents and criminals. They mostly had unprotected sex with the men and some ended up getting pregnant. Those who got delayed in reaching Europe could give birth in detention centers, prison cells and so on with little or no support. One key figure among the KII confidently informed the principal researcher that *"None of the ladies who took the journey had escaped having sexual intercourse with these men"*. Probably, out of shyness if you ask them, some will deny it but they all indeed went through it.

#### 4.3.5 Measures taken to address illegal migration of the country's youths.

The data as presented had established numerous measures taken by Government and its partners to curtail the number of illegal migrants perishing along the perilous journey. Unfortunately, there is only a little success that had been achieved so far. Consequently, more work is required if the Government and its partners are to realize any meaningful impacts in addressing illegal migration.

According to the Foreign affairs Banjul office, the number of illegal Gambians arrival in all the destination countries in Europe has dropped this year (2022) based on data received from the European countries. The government is involved in partnering with other international institutions to come up with projects to support the youth. To create enabling environment for sustaining livelihoods. They establish skill centers to train youths. The immigration department is also patrolling the borderline of the country to trace, meet and

counsel potential migrants. This had been made possible partly due to sensitization and other opportunities created back home for the youths and also because of the hardship the youths encounter through the perilous journey.

On the other hand, all key informants outside the government offices disagree with the notion that Government intervention had curtailed the number of illegal migrants. They said during the change of Government in 2016, the 'back way' journey had declined but it is been rekindled again. The youths were expecting better living conditions after the change of Government, they had realized it is not the case. So many had returned after coming back a few years ago.

One agent who had been working in Libya for 15 years disagreed with others that sensitization had reduced the number of youths taking the 'back way', and he said this:

*“The main factor that reduced the number of illegal migrants is the hardship they are faced with along the journey and not the awareness-raising conducted by the Government, IOM and YAIM or any other group. The 'back way' endures a lot of hardship and it is getting tougher each day. Apart from the physical hardship one faces, there are all forms of torture meted on migrants and crossing the Mediterranean Sea is another nightmare. One could attempt crossing many times in vain while you spend a lot of money that becomes a waste”.*

#### 4.4 Problems encountered in the Field

The scope of the study and its nature in The Gambia is unique given the diverse stakeholders engaged in the work. Therefore, many problems were encountered during the research and the main ones were the following:

Given the nature of the study, those engaged in the migration are always hiding and were reluctant to accept the interviews. They feared to be arrested and deported back to The Gambia since, there were many rumors that Gambia's immigration officers and other agents were travelling to Europe to identify Gambia's migrants to be returned home as per agreement with European governments.

Some returnees were frustrated and deserted by their families and society for failing to reach Europe after huge investments were incurred in their trips. Many of the returnees were also surveyed by IOM officials after returning and promising them support that never happened. These and many other issues they faced disturbed the sampled population so much that they had no trust for any other interviewer.

It was also too emotional to conduct some FGDs because many participants explained how they lost their children and loved ones after invested all their resources on them. Some communities never wanted to discuss about the perilous journey because their sad memories were still fresh in their minds on how they lost many young men leaving their wives and babies behind.

One frustrating issue encountered was the unwillingness of many government officials to accept the author for an interview. The relevant officials identified to accord the author an interview from various departments kept giving the researcher failed appointments. This was earmarked to frustrate him to cancel the interviews. The researcher had to make an average of 5 to 7 telephone calls before succeeding in getting one officer to interview. There were countless number of postponed interview schedules for respondents claiming to be engaged in government missions or traveling outside the jurisdiction of the country.

Finally, the inadequate number of peer review literature materials on the topic in The Gambia constitutes a constraint in the research process. This is also a virtuous thing because it shows the novelty of the research. However, there are opportunities for further advancement of the study that other authors can probe into. For instance, others can investigate the reasons pushing the non-farming youths to take the perilous journey like the ones studied. This class of irregular migrants was totally left out in the study and many of them also take the perilous journey. Studying the activities that the state and non-state actors should pursue to address irregular migration would be relevant to address the youths' problems.

## **CHAPTER FIVE:**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

This final chapter of the dissertation provides a summary of content in previous chapters with particular emphasis on research findings, reports on crucial conclusions drawn from the study and makes propositions for follow-up by scholars and policymakers. The investigation addresses the research questions, highlights the strengths and limitations of the study, and offers recommendations for further research.

#### **5.1 Summary**

The study was designed to investigate the effects of flood and drought on the illegal migration of The Gambia's youths. Both open and close-ended questions were drafted to guide the collection of relevant data to give readers and policymakers the necessary information to make the required decisions in addressing the problems of illegal migration.

Four regions (NBR, CRR, URR and WCR) were purposely selected for the study area due to these areas' suitability for the research topic. They areas are not only occupied by farmer communities but NBR and CRR are hot spots for drought in the country. Whereas WCR and URR are prone to flash and riverine floods respectively. The study was guided by five (5) research objectives: the first sought to assess the perception and causes of migration in the study area; the second examined the effects of climate extremes (Flood and drought) on illegal migration; the third identified problems faced by youths during journeys to their destination; the forth tried to find out the coping strategies by youths during their perilous journey; and finally, the fifth evaluated measures taken by the government, civil society groups and other organized institutions to address illegal migration of youths, and how effective are these measures.

It was carried out using a descriptive survey where data is collected by interviewing or discussing with sampled respondents. The sample was composed of 105 illegal migrants and returnees, 80 FGD participants from the four regions, 12 KIs from appropriate institutions working with migrants and a few specialists in the climate change domain. The instruments for data collection were specifically questionnaires, interview checklists, GIS and ground truthing including observation and photography.

Based on information garnered from these instruments, the respondents have a good understanding of climate change and acknowledged it being among the reasons why many youths migrate illegally to Europe. This is in tandem with many recent studies on the subject but in contrast with others that claimed poverty, insecurity and poor governance as the bases for many displacements of persons, especially in East Africa (For example Ethiopia). It has been established that both flood and drought are pronounced in the study areas. These had seriously affected agricultural production and productivity thus negatively impacting the lives and livelihoods of many farmers. These served as a catalyst and exacerbated the illegal migration of The Gambia's youths in recent years. It is also worsened by the denial of visas to the youths by many embassies representing the global north (Europe and the United States). However, NBR and CRR being the driest and with more farming activities taking place had witnessed more of its youths taking up the 'back way' than URR and WCR.

Crucially, the study revealed that practically all the youths embarking on illegal migration endure numerous problems that are associated with socio-economic, feeding and at worst dead while traversing the Sahara Desert and/or the Mediterranean Sea.

Enumeration of these problems would make one wonder what is still motivating the youths to take the perils.

Nonetheless, the migrants are actively engaged in certain strategies to help them overcome these challenges by sticking together and boosting each other's morale as much as they can. They also seek support from friends and families both from home and abroad to lessen their adversaries.

On measures taken to address the illegal migration of The Gambia's youths, both the Government and its development partners (for example EU, IOM, YAIM, Gambia German Advisory Centre and many others) are actively engaged in addressing the illegal migration of the youths. Unfortunately, their efforts had yielded little or no success according to the study. There are only a few who claimed there had been a success in their activities to fight against illegal migration. Those believing in this notion are either government officials or stakeholders supporting the government to address illegal migration like IOM. About 90% of respondents had a feeling that the Government and its partners are failing in their responsibilities in addressing the menace. Respondents blamed this state of affairs for bias, political interference, and adverse effects of climate change and variability. The latter is considered to be the main push factor responsible for the illegal migration of Gambian youths from farming communities. Any intervention that failed to factor in climate change issues is likely to fail in addressing the illegal migration of the youths.

## 5.2 Conclusion

From the foregoing, the researcher draws the following conclusions:

- 1) Climate extreme events specifically flood and drought had been pronounced in the four regions studied. Long dry spells are more severe in NBR and CRR than in URR and WCR. This is negatively impacting all farming communities in the regions and leading to more migration of the youths in these areas;
- 2) Precipitation in all the regions had been found increasing in trend unlike what most interviewees said. Therefore, the erratic nature of rainfall in the country and climate variability should be associated with the diminishing trend of agricultural production and productivity;
- 3) The data showed that temperature is continuously increasing over the study period throughout the country. This is also reported by many scientific bodies including the Inter-governmental Panel on Climate Change (IPCC) in the World including Sub-Saharan Africa (The Gambia inclusive). One hundred per cent of respondents in the study confirmed an increase in the country's temperatures over the study period. This is also affecting both crop production and animal rearing in the various regions;
- 4) The link between climate change and the illegal migration of the youths is well established because climate change is impacting farming greatly, which is inducing the migration of the youths. Illegal migration of The Gambia's rural youths is enormously correlated with the downward trend of agricultural activities over the last three decades. Though 99% of respondents indicated the poor economy of the country as the main reason pushing them to embark on the perilous journey, the second factor pushing them is found to be related to the environment that dictates farming. Essentially, even the economy of the country is mainly driven by farming.

And the respondent concluded that climate change means poverty to them because it has only come to destabilize their means of livelihood;

- 5) Furthermore, regardless of all the odds illegal migrants are faced with at home, which evicted them to seek better options elsewhere. They endure dreadful scenes and encounter numerous difficulties along their journeys earmarked to improve their lives and livelihoods. Notwithstanding, they are found to stick together during the journey to give a moral boost to each other and sometimes seek support from home and abroad to complete the journey; and
- 6) Finally, both Government and its development partners like the EU are actively engaged in addressing illegal migration of the youths. The earlier interventions by IOM such as giving cash to returnees to start a business were very effective in addressing illegal migration. The institution was also buying cars and sewing machines for returnees to engage in entrepreneurship and be better reintegrated into society. But their efforts in addressing the subject are thwarted by an inadequate understanding of the hybrid of issues surrounding the topic.

### 5.3 Recommendations

Having regard to the study findings and conclusions drawn therefrom, the author draws the attention of policymakers, researchers and other stakeholders working on migration-related issues to the following recommendations:

1. The establishment of schools in remote areas will also help in addressing the illegal migration of the youths. When schools are constructed, many parents will send their children to school and if they succeed in completion, they will have a profession and won't attempt the 'back way'. The schools and other forms of sensitization

should endeavor to change the concept of most youths in this country. At present, many youths of the country believe if you do not travel to Europe, you will not make it to The Gambia. The sensitization could be intensified using the data obtained from the problems migrants encounter while on the perilous journey.

2. The country should advocate for skills training centers and encourage the youths to build their skills from those institutions. This is why the Senegalese counterparts always have an edge over the Gambians in the job market. The skill centers should equip the youths with the requisite skills to make them employable. These centers should be decentralized especially in each of the districts. This will greatly impact their lives and livelihoods by making them gain employment and earn a living. The skills youth will be equipped with would make it easy for them to attract jobs if they travel to Europe. Therefore, the Government should explore to make bilateral and multilaterals arrangements for the youths to travel legally to Europe and experience what it is like there.
3. The government and its partners should support those engaging in Agricultural activities. This could be done by investing and supporting climate smart agriculture to help farmers appropriately adapt to and mitigate climate change / variability. There should be an established veterinary service at the grassroots to solve the urgent needs of the herders. Crop cultivation should be supported with farm implements like manure, seeders and many more;
4. Establishing industries or food manufacturing plants to process the products of farmers by adding value to them. For instance, juice processing plants in West Coast Region where many fruit trees are found. Onion processing factory in North

Bank Region because many women in the region produce numerous tons of onions. The projects that come to this country to support the rural people should be implemented at the grassroots by strictly those with the technical know-how. It should follow a bottom-up approach and not the usual top down, the latter has been a failure in many instances in the country;

5. Since climate change had been found to cause the displacement of many farmers. There should be massive sensitization of farmers to help them understand the term clearly and learn how to adapt and mitigate the impacts of climate change and variability. This will make them build resilience to the adverse effects of climate extremes. As such, community forests are very significant in making sure the environment is protected because people do make sure they exploit the natural resources but in a sustainable manner; and
6. To conclude, there should be more studies conducted on the topic to come up with relevant data to guide the implementation of many projects earmarked to address climate change impacts and the migration of people, especially the youth. This set of the population is the cream of every society. The study was able to unravel that there is inadequate data on Gambian emigrants, particularly irregular migrants. This needs to be studied because it can play a significant role in developmental planning for the country.

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## APPENDICES

### Appendix 1. Research Questionnaires for “Illegal Migrants” and Returnees

#### 1a: Migrants’ Questionnaires

##### Introduction

My name is Demba Baldeh. I am a PhD research student, studying climate change and Education at the University of The Gambia. I am conducting a study in fulfillment of a requirement of my studies. In this regard, I need concern persons who are one-time emigrants and can help me answer some questions pertaining to the topic, and you happened to be one of those. Thus, I will be grateful if you can spare me some of your time and help by answering to my questions. You can withdraw at any time, but your support to our study is valuable and the information collected will be used only for academic/research purposes.

This survey will help determine the effects of Climate Extremes (Flood & Drought) on illegal Migration of The Gambia’s youth. I kindly request you to fill this questionnaire. Please answer the questions as honestly and truthfully as possible by ticking the option you choose or filling in the spaces provided. **The information you give will be treated with utmost privacy and will be used for this study only.** I wish to assure you that confidentiality is something we do not compromise at the University of The Gambia. Thank you for taking the time to complete this survey.

Kind regards!

##### Section 1b: Personal Information

No.	Question	Please tick the option that best answers the question or fill your answer were possible	
		Response choice	
1.	What is your age in years? In years		
2.	What is your Sex?	Male	= 1
		Female	= 2
		Other	= 3
3.	What is your Marital Status?	Married	= 1
		Single	= 2

Divorced = 3  
Widowed = 4  
Other = 5

4. What is your level of education? No formal education  
Arabic or Madrassa  
Basic education  
Secondary education  
Tertiary education  
University education
5. Which region do you originate from?
6. Where are you currently living? (Country)
7. How long have you been staying where you are? Below 5 years  
From 5 to 10 years  
From 11 to 20 years  
Above 20 years
8. Where you in a possession of visa or travel document to travel to your destination? Yes  
No
9. Do you consider yourself illegal migrant? Yes  
No
- A If yes is your answer to question 9, why?
- B If No is your answer to the same question, give reasons
10. What is your profession?
11. What is your parent's occupation?

**Section 2: Assessment of the perception level and causes of illegal migration in the study area**

**Answer the following questions to the best of your judgment and perception.**

1. Any migration to a place by not satisfying the requirement of the destination country is considered illegal. Tick either 'yes' or 'no' as your answer. YES / NO
2. Is your reason(s) for migration related to any of the following? Tick either "yes" or "no" to each variable identified.

Item	Yes	No
Environmental		
Political		
Social		
Economic		
Cultural		
If there is any other reason(s), name it or them .....		

3. If Environmental is chosen among the variables in question 2, could you explain how it caused your migration?

.....  
 .....  
 .....

4. Do you have an idea of what climate change means? YES / NO
5. If your answer for question 4 is yes, tick either "yes" or "no" if the following events are associated with climate change in your area?

Item	Yes	No
Flood		
Drought		
Increased temperature		
Wildfires		
Windstorm		
Disease outbreak		
Other(s) please name if any .....		

6. What do you feel about the incidence of rainfall in your community of origin over the years? Tick the most appropriate answer from the options provided.
  - a. Increasing b. Decreasing c. No changes
7. Do you feel the temperatures are increasing at your place of origin? Tick either YES / NO
8. Are you familiar with the term drought? Tick either YES / NO
9. If your answer to (Question 8) is 'yes' describe it please. If no ignore all the questions related to drought in this section.
 

.....

.....

.....
10. How many times did you witness drought during your life time?
 

.....
11. How long those the drought usually last? Tick against your answer from the options given
  - a. less than 2 weeks
  - b. 2 weeks and more but less than a month
  - c. one month and more

12. Strain placed by drought on household food systems (production, transportation, exchange)

**Item**

Indicate the extent to which you agree or disagree with each statement below. Tick in the appropriate column against the statement

**1=Strongly Disagree, 2=Disagree, 3=Neutral 4=Agree. 5=Strongly Agree**

**1 2 3 4 5**

Household access to basic food supplies is disrupted

Household food rations are reduced

Livestock is lost

Home/Kitchen gardens are destroyed

Drought a factor in increase of prices of basic commodities

Crop harvest losses projected

Upland rice fields dried up leading to poor harvest

13. What do you normally do if you are affected by drought to cope with its impact?

.....  
.....  
.....

14. Do you or any member of your household migrate to search for job when drought hits?

- a. Sometimes
- b. Always
- c. Never

15. If you check ‘never’ in question 14, kindly explain what you do to survive the drought impacts.....  
.....

16. If you or a member of your household migrates when droughts hit to improve the family’s conditions. Where does the migrant go to?

- a. within the country
- b. outside the country
- c. both within and outside the country

17. Is there any person from your household who attempted or migrated to Europe through illegal means? YES / NO

18. Answer only if you tick “yes” in **question 17**. If a member of this household reached Europe through this means, which country in Europe did he/she arrived at?

- a. Italy
- b. Spain
- c. Other (Please specify) .....

19. In your view, why do you think the migrant chose to travel to the country you named in number 18? .....

20. Do you know what flood means? YES / NO

21. If yes is your answer to (Question 20), please explain. If your answer is no, skip to section 3.2 to continue answering those questions

.....  
.....  
22. How many times has flood occurred during your life time?

- a. Less than 5
- b. 5 to 10
- c. more than 10
- d. I cannot tell

23. How long does flood usually last when it occurs?

- a. Less than 7 days
- b. more than 7 days but less than a month
- c. more than a month

24. Strain placed by floods on household food systems (production, transportation, exchange)

**Item**

Indicate the extent to which you agree or disagree with each of the statements that follow? Tick in the appropriate column against the statement

**1=Strongly Disagree,**  
**2=Disagree, 3=Neutral**  
**4=Agree. 5=Strongly Agree**

**1 2 3 4 5**

Household access to basic food supplies is disrupted

Household food rations are reduced

Livestock is lost

Food in storage is rendered unfit for human consumption

Home/Kitchen gardens are destroyed

Flood a factor in increase of prices of basic commodities

Crop harvest losses anticipated

Rice fields are submerged leading to poor harvest

Other farms are destroyed

**Section 3: Examine the effects of climate extremes (Flood and drought) on illegal migration**

3.1 The effects of flood on migration

Item	Indicate Yes or No to the statements that follow by ticking in the appropriate column against the statement		
	Yes	No	I cannot tell
Flood disruption of social services such as health and electricity supply will make life difficult to induce migration			
Farms and vegetable gardens are destroyed by flood causing youths to migrate and look for opportunities to help their family			
Flood renders foodstuff unfit for human consumption leading youths to migrate in search of food for their families			
Flood also destroys physical structures like roads, bridges, and buildings forcing people to leave those areas for better places.			
Flood carries away domestic animals making livelihood of owners difficult and causing them to migrate			
Water borne diseases are prevalent during and immediately after flooding forcing inhabitants to move away from flooded areas			
Business activities are brought to a standstill causing loss of revenue and migration of residence affected			
Residents of flood prone areas usually sell assets attempting to send young members of their family to Europe, so that they improve the family's condition.			

3.2 The effects of drought on migration

Item	Indicate Yes or No to the statements that follow by ticking in the appropriate column against the statement		
	Yes	No	I cannot tell
Drought causes water shortage and at worst absence of it forcing people to migrate.			
If drought hits, agriculturists lack activities to do, hence they resort to migration for temporal or permanent job.			
Farmers' crop farms and vegetable gardens are destroyed during drought and making them to move out for better opportunities.			
The youths being the most active group are the most common to migrate during drought for better opportunities.			
Domestic animals like cattle, sheep and goats etc. suffer from hunger and starvation leading to massive deaths of such animals. This consequently affect pastoralists and make them emigrate from affected areas.			
Poulties are affected by drought causing food shortage for people which makes them migrate to look for food elsewhere.			
Drought leads to water shortage hence herders migrate elsewhere in search of water for their animals			
Some pastoralists/herders sell their animals to embark on illegal migration because they usually lose many animals during droughts			
Generally, people sell any asset they have to send young members of their families to Europe, expecting to improve their conditions during drought.			

#### **Section 4: Identify problems faced by youths during journeys to their destination.**

##### 4.1 Problems encountered within the territorial boundary of the country

Item	Indicate Yes or No to the statements that follow by

	ticking in the appropriate column against the statement		
	Yes	No	I cannot tell
Illegal migrants keep their transaction in secret for fear of being spotted and prevented from embarking on the journey			
Gathering of the required money to undertake the journey			
Collecting the necessary information about the journey			
Obtaining identification documents like passport, identity card, and birth certificate			
Sleeping at hide out locations while waiting for transport			
Restricted movements in and out for fear of being under surveillance			
Poor condition of transport system endangering migrant's health			

4.2 Problems faced by illegal migrants outside the country before boarding a ship destined for Europe/outside Africa.

Item	Indicate Yes or No to the statements that follow by ticking in the appropriate column against the statement		
	Yes	No	I cannot tell
Immigration and other government officials in some countries outside The Gambia extort monies from youth migrants by asking for bribes			
They are pack together like sardines in congested transport system without proper ventilation			
Migrants were forced to disembark their transport and sometimes put in custody or cells			

Migrants monies are forcefully taken from them by terror groups			
Illegal migrants are sometimes tortured, for instance beaten up and insulted by terror groups			
In some cases, migrants die while crossing the Sahara Desert, consequently they are left unburied or given a semi burial			
Youth migrants in some cases have to do temporary jobs to have some money to enable them continue their journey			
They are also forced to do domestic jobs with no remuneration or pay			
Some migrants are sexually harassed during their journeys			
Migrants are faced with food, water and medicine problems during their journeys			
It is common knowledge that migrants are sometimes arrested by terror groups and asked to pay certain amount of money or face imprisonment			
Migrants are sometimes actually imprisoned and made to pay ransom to their captives			
They occasionally are forced to reside in detention centers			

#### 4.3 Problems experienced by the illegal migrants onboard a ship in an attempt to reach Europe/other countries

Item	Indicate Yes or No to the statements that follow by ticking in the appropriate column against the statement	
	Yes	No
Food scarcity was a problem for those onboard		

Water was scarce leading to huge thirst for migrants in ships		
Many became hungry and malnourished		
Sometimes migrants get sick and die in ships, hence their corpses are drop in the sea		
The journey was long and extremely difficult for members		
Those onboard suffered multiple diseases on the ship		
The weather was so harsh making life difficult for migrants		
Strange wave sounds and other unrecognized sounds were heard threatening migrants onboard. Because these sounds make passengers fearful.		
There are instances ships developed faults leading to drowning of migrants		
Some members onboard were terrified and disrupted the smooth sailing of the ship		
Illegal migrants reaching Europe are taken to detention camps as captives		

**Section 5: Find out the coping strategies by youths during their perilous journey**

Item	Indicate Yes or No to the statements that follow by ticking in the appropriate column against the statement		
	Yes	No	I am not sure
Illegal migrants usually engage in part time job			
They ask for money from families and friends at home and abroad			
They usually sell their valuables cheaply for livelihood sustenance			

Sometimes they engage in illicit activities like drug dealing and sexual exploitation			
Migrants come together and hire a place to live temporary			
They also sleep in car parks or/and shantytowns			
They seek support from agents/smugglers whom they trust			
In some cases, they reduce their food and water intake to safe the limited quantity they have			
Migrants sometimes go around begging for food from vendors			
They do domestic jobs like dish washing to be given food in returns by restaurant owners			
Hiding monies at secret parts of their bodies like in under wears, shoe sole, shocks, and bra etc. to prevent it from being taken away by captors and bandits			

**Section 6: Evaluate the effectiveness of the measures taken by the state and non-state actors in addressing illegal migration of The Gambia’s youths**

6.1 The efficacy of measures taken to curb illegal migration by state and non-state actors

<b>Item</b>	Indicate the extent to which you agree or disagree with each statement below. Tick in the appropriate column against the statement		
	<b>Agree</b>	<b>Disagree</b>	<b>Not sure</b>
Government is mandated to prevent illegal migration of its youths			
Foreign donors give support like money and logistics to government in order to stamp out illegal migration			
The support given is adequate to help potential youth migrants establish a business instead of risking their lives on the perilous journey to Europe			

Non-state actors like IOM, EU and YEP are giving support to youths so as to prevent them from illegally migrating			
The support given to youths is reasonable to curb illegal migration			
Government and foreign countries usually partner to repatriate illegal migrants back to The Gambia			
Both the state and non-state actors sensitize Gambians on the dangers of illegal migration			

6.2 In your view, the activities stated in **Table 6.1** had little or no impact in curbing illegal migration of the Gambia’s youths. Tick either ‘yes’ or ‘no’ to the statement made YES / NO

a. Give a brief explanation of your choice of answer

.....  
.....  
.....

b. What do you think need to be done to minimize or stop illegal migration of the country’s youths?

.....  
.....  
.....  
.....

6.3 What could you say about the link between illegal migration of Gambia’s youths and climate change?

.....  
.....  
.....

6.4 What do you think about this study? And what personal opinion would you like to advice?

**Thank you very much for taking your valuable time to respond to my questionnaire.**

**Appendix 2.** Interview checklist for Key Informant Interview (KII)

**1a: Introduction**

My name is Demba Baldeh. I am a PhD research student, studying climate change and Education at the University of The Gambia. I am conducting a study in fulfillment of a requirement of my studies. In this regard, I need concern persons who are associated with irregular migrants and can help me answer some questions pertaining to the topic, and you

happened to be one of those. Thus, I will be grateful if you can spare me some of your time and help by answering to my questions. You can withdraw at any time, but your support to our study is valuable and the information collected will be used only for academic/research purposes.

This survey will help determine the effects of Climate Extremes (Flood & Drought) on illegal Migration of The Gambia's youth. I kindly request you to answer the questions as honestly and truthfully as possible. **The information you give will be treated with utmost privacy and will be used for this study only.** I wish to assure you that confidentiality is something we do not compromise at the University of The Gambia. Thank you for taking the time to complete this survey.

Kind regards!

**Section 1b: Personal Information**

Type of Interview: Key Informant Interview (KII)

Date: .....

Name: Prof., Dr, Mr., Ms. ....

Place of work: .....

Duration of Interview: .....

**Sex:**            Male                       Female                       Other

Age in years: .....

**Section 2: Assessment of the perception level and causes of illegal migration in the study area**

1. Why are Gambia's youths going to Europe without a visa considered illegal migrants?
2. What do you consider the main reason(s) pushing many youths to leave this country for the 'Back way' syndrome?
3. Climate change has become a household name, what does climate change mean to you?
4. Could you name the extreme events that are associated with climate change in your area?
  
5. What do you feel about the incidence of rainfall and temperature in your community over the years?
6. How does drought affect illegal migration of The Gambia's youths?
7. How does flood affect illegal migration of The Gambia's youths?
8. Do you have any relationship with someone who engaged in illegal migration?
9. What problems do the 'Back way' migrants encounter during their journeys?

10. What are the measures taken by the state in addressing illegal migration of The Gambia's youths?
11. Discuss some measures, if any, taken by the non-state actors in addressing illegal migration.
12. In your views, are the activities stated effective in curbing illegal migration of the Gambia's youths? Give a brief explanation of your choice of answer
13. What do you think need to be done to minimize or stop illegal migration of the country's youths?
14. What could you say about the link between illegal migration of Gambia's youths and climate change?
15. What do you think about this study? And what personal opinion would you like to advice?

**Thank you very much for taking your valuable time to respond to my questions.**

### Appendix 3. Factor analysis results

#### Case Processing Summary

		N	%
Cases	Valid	105	100.0
	Excluded <sup>a</sup>	0	.0
	Total	105	100.0

a. Listwise deletion based on all variables in the procedure.

#### Summary Item Statistics

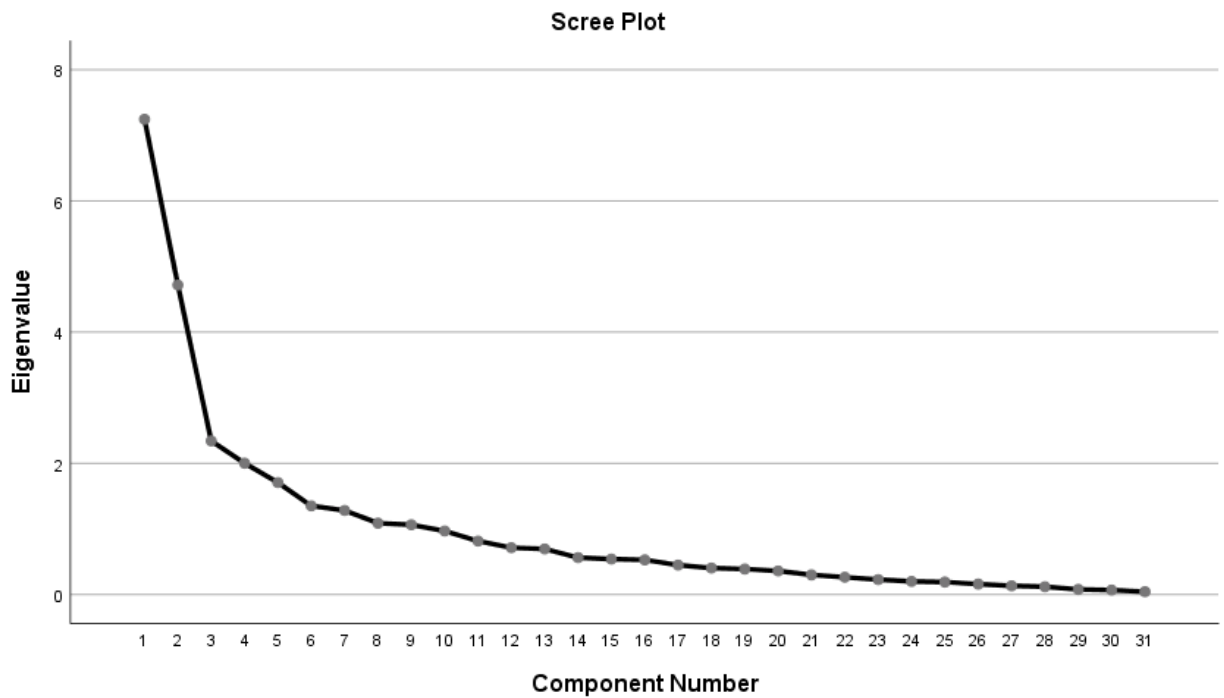
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	1.214	1.029	1.514	.486	1.472	.018	31

#### Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.244	23.367	23.367	7.244	23.367	23.367	6.422	20.717	20.717
2	4.717	15.216	38.583	4.717	15.216	38.583	3.857	12.440	33.157
3	2.341	7.552	46.135	2.341	7.552	46.135	3.483	11.236	44.393
4	2.002	6.457	52.592	2.002	6.457	52.592	2.189	7.061	51.454
5	1.706	5.504	58.097	1.706	5.504	58.097	2.059	6.643	58.097
6	1.351	4.359	62.456						
7	1.281	4.131	66.587						
8	1.088	3.509	70.096						
9	1.063	3.429	73.525						
10	.969	3.125	76.649						
11	.815	2.630	79.279						
12	.713	2.302	81.581						
13	.695	2.241	83.822						

14	.562	1.814	85.637						
15	.541	1.744	87.380						
16	.529	1.705	89.085						
17	.449	1.447	90.532						
18	.404	1.304	91.836						
19	.389	1.254	93.090						
20	.360	1.161	94.252						
21	.299	.964	95.216						
22	.264	.851	96.067						
23	.228	.737	96.803						
24	.200	.647	97.450						
25	.190	.613	98.063						
26	.159	.514	98.578						
27	.133	.428	99.005						
28	.119	.384	99.389						
29	.079	.254	99.643						
30	.068	.220	99.863						
31	.043	.137	100.000						

Extraction Method: Principal Component Analysis.



## Component Matrix<sup>a</sup>

	Component				
	1	2	3	4	5
Illegal migrants keep their transaction in secret for fear of being spotted and prevented from embarking on the journey	.173	-.011	-.010	.476	.147
Gathering of the required money to undertake the journey	.004	.043	-.089	.495	.425
Collecting the necessary information about the journey	.122	.085	.276	.278	.478
Obtaining identification documents like passport, identity card, and birth certificate	.481	.287	-.057	.445	-.322
Sleeping at hide out locations while waiting for transport	.434	.313	.244	.488	.080
Restricted movements in and out for fear of being under surveillance	.262	.397	.028	.566	.269
Poor condition of transport system endangering migrant's health	.285	-.051	.082	-.347	.409
Immigration and other government officials in some countries outside The Gambia extort monies from youth migrants by asking for bribes	.696	-.429	-.065	-.033	-.118
They are pack together like sardines in congested transport system without proper ventilation	.331	-.073	.004	-.361	.286
Migrants were forced to disembark their transport and sometimes put in custody or cells	.626	-.411	-.105	-.039	.040
Migrants monies are forcefully taken from them by terror groups	.680	-.349	-.038	.044	-.115
Illegal migrants are sometimes tortured, for instance beaten up and insulted by terror groups	.737	-.224	.073	-.062	-.091
In some cases, migrants die while crossing the Sahara Desert, consequently they are left unburied or given a semi burial	.692	-.144	-.149	-.046	-.039
Youth migrants in some cases have to do temporary jobs to have some money to enable them continue their journey	.741	-.428	-.084	.063	.058
They are also forced to do domestic jobs with no remuneration or pay	.800	-.330	.089	.105	-.089

Some migrants are sexually harassed during their journeys	.657	.008	.047	.066	-.206
Migrants are faced with food, water and medicine problems during their journeys	.444	.041	-.214	-.075	.539
It is common knowledge that migrants are sometimes arrested by terror groups and asked to pay certain amount of money or face imprisonment	.559	-.405	-.016	.011	-.180
Migrants are sometimes actually imprisoned and made to pay ransom to their captives	.737	-.218	-.024	.040	-.166
They occasionally are forced to reside in detention centers	.482	-.261	.185	-.124	.207
Food scarcity was a problem for those onboard	.373	.642	-.533	-.164	.124
Water was scarce leading to huge thirst for migrants in ships	.372	.643	-.542	-.166	.116
Many became hungry and malnourished	.430	.573	-.487	-.196	.046
Sometimes migrants get sick and die in ships, hence their corpses are drop in the sea	.441	.397	.156	-.310	-.113
The journey was long and extremely difficult for members	.189	.668	-.262	-.079	-.115
Those onboard suffered multiple diseases on the ship	.236	.612	.441	-.141	-.116
The weather was so harsh making life difficult for migrants	.335	.492	-.103	.170	-.291
Strange wave sounds and other unrecognized sounds were heard threatening migrants onboard. Because these sounds make passengers fearful.	.321	.677	.384	.051	.049
There are instances ships developed faults leading to drowning of migrants	.301	.251	.672	-.338	.111
Some members onboard were terrified and disrupted the smooth sailing of the ship	.157	.570	.416	.003	-.326
Illegal migrants reaching Europe are taken to detention camps as captives	.416	.152	.400	-.182	.288

Extraction Method: Principal Component Analysis.

a. 5 components extracted.

### Rotated Component Matrix<sup>a</sup>

	Component				
	1	2	3	4	5
Illegal migrants keep their transaction in secret for fear of being spotted and prevented from embarking on the journey	.146	-.016	-.058	.492	-.104
Gathering of the required money to undertake the journey	-.084	.017	-.193	.622	.060
Collecting the necessary information about the journey	-.040	-.128	.148	.532	.285
Obtaining identification documents like passport, identity card, and birth certificate	.387	.311	.267	.334	-.436
Sleeping at hide out locations while waiting for transport	.232	.108	.398	.595	-.111
Restricted movements in and out for fear of being under surveillance	.015	.243	.190	.720	-.072
Poor condition of transport system endangering migrant's health	.153	.057	.074	-.025	.588
Immigration and other government officials in some countries outside The Gambia extort monies from youth migrants by asking for bribes	.820	-.013	-.066	-.041	.098
They are pack together like sardines in congested transport system without proper ventilation	.233	.111	.045	-.101	.498
Migrants were forced to disembark their transport and sometimes put in custody or cells	.716	.004	-.137	.022	.207
Migrants monies are forcefully taken from them by terror groups	.772	.005	-.016	.037	.051
Illegal migrants are sometimes tortured, for instance beaten up and insulted by terror groups	.750	.047	.162	.004	.141
In some cases, migrants die while crossing the Sahara Desert, consequently they are left unburied or given a semi burial	.674	.231	.020	.031	.129
Youth migrants in some cases have to do temporary jobs to have some money to enable them continue their journey	.823	.001	-.115	.133	.195
They are also forced to do domestic jobs with no remuneration or pay	.859	-.038	.109	.135	.078

Some migrants are sexually harassed during their journeys	.612	.171	.260	.075	-.063
Migrants are faced with food, water and medicine problems during their journeys	.245	.326	-.107	.285	.531
It is common knowledge that migrants are sometimes arrested by terror groups and asked to pay certain amount of money or face imprisonment	.705	-.080	-.049	-.054	.002
Migrants are sometimes actually imprisoned and made to pay ransom to their captives	.774	.100	.096	.042	.013
They occasionally are forced to reside in detention centers	.470	-.121	.096	.062	.380
Food scarcity was a problem for those onboard	.020	.921	.082	.068	.131
Water was scarce leading to huge thirst for migrants in ships	.022	.928	.077	.061	.125
Many became hungry and malnourished	.115	.867	.112	.003	.110
Sometimes migrants get sick and die in ships, hence their corpses are drop in the sea	.206	.344	.531	-.146	.146
The journey was long and extremely difficult for members	-.101	.686	.279	.008	-.112
Those onboard suffered multiple diseases on the ship	-.069	.203	.782	.014	.025
The weather was so harsh making life difficult for migrants	.150	.471	.339	.130	-.320
Strange wave sounds and other unrecognized sounds were heard threatening migrants onboard. Because these sounds make passengers fearful.	-.050	.284	.742	.278	.058
There are instances ships developed faults leading to drowning of migrants	.076	-.136	.741	-.063	.393
Some members onboard were terrified and disrupted the smooth sailing of the ship	-.061	.145	.740	.001	-.235
Illegal migrants reaching Europe are taken to detention camps as captives	.198	-.005	.462	.135	.449

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.<sup>a</sup>

a. Rotation converged in 7 iterations.

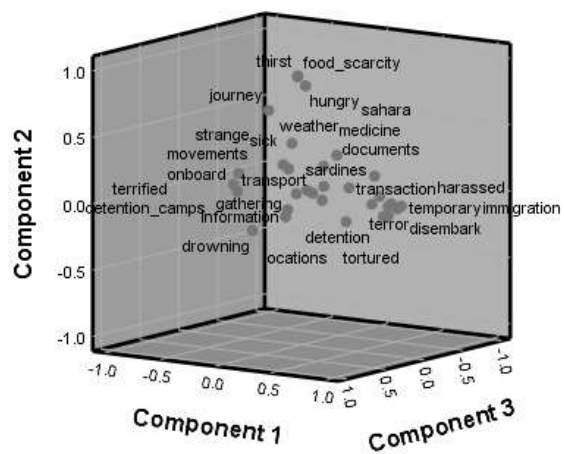
### Component Transformation Matrix

Component	1	2	3	4	5
1	.862	.318	.285	.183	.202
2	-.446	.657	.572	.178	-.100
3	-.042	-.666	.729	.084	.127
4	.053	-.150	-.134	.817	-.538
5	-.231	.007	-.207	.511	.802

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

### Component Plot in Rotated Space



### Scale Statistics

Mean	Variance	Std. Deviation	N of Items
37.6190	54.738	7.39852	31

**Appendix 4.** Land use and landcover change analysed data

**1980 Satellite Data**

<b>S/N</b>	<b>Satellite Sensors</b>	<b>Scenes Paths/Rows</b>	<b>Date Acquired</b>	<b>Bands</b>	<b>Spatial Resolution (Meters)</b>
<b>1</b>	Landsat Multi-spectral Scanner	3 205/051	1980/12/05	,3,2,1	30
<b>2</b>	Landsat Multi-spectral Scanner	3 204/050	1980/10/30	3,2,1	30
<b>3</b>	Landsat Multi-spectral Scanner	3 204/051	1980/12/30	3,2,1	30
<b>4</b>	Landsat Multi-spectral Scanner	3 204/050	1980/10/23	3,2,1	30

**1990 Satellite Data**

<b>S/N</b>	<b>Satellite Sensors</b>	<b>Scenes Paths/Rows</b>	<b>Date Acquired</b>	<b>Bands</b>	<b>Resolution</b>
<b>1</b>	Landsat Thematic Mapper	5 205/051	1990/12/21	4,3,2	30
<b>2</b>	Landsat Thematic Mapper	5 204/050	1990/12/14	4,3,2	30

3	Landsat Thematic Mapper	5	204/051	1990/12/30	4,3,2	30
4	Landsat Thematic Mapper	5	204/050	1990/12/29	4,3,2	30

### 2000 Satellite Data

S/N	Satellite Sensors	Scenes Paths/Rows	Date Acquired	Bands	Resolution
1	Landsat Enhanced Thematic Mapper	7 205/051	2000/12/08	4,3,2	30
2	Landsat Thematic Mapper	7 204/050	2000/10/30	4,3,2	30
3	Landsat Enhanced Thematic Mapper	7 204/051	2000/10/30	4,3,2	30
4	Landsat Enhanced Thematic Mapper	7 204/050	2000/10/23	4,3,2	30

### 2010 Satellite Data

S/N	Satellite Sensors	Scenes Paths/Rows	Date Acquired	Bands	Resolution
1	Landsat Thematic Mapper	5 203/051	2010/12/08	4,3,2	30

2	Landsat Thematic Mapper	5	205/050	2010/10/30	4,3,2	30
3	Landsat Thematic Mapper	5	204/051	2010/10/30	4,3,2	30
4	Landsat Thematic Mapper	5	204/051	2010/10/23	4,3,2	30

### 2020 Satellite Data

S/N	Satellite Sensors	Scenes Paths/Rows	Date Acquired	Bands	Resolution
1	Landsat OLI TIRS	8 205/051	2020/10/29	3,4,5	30
2	Landsat OLI TIRS	8 204/050	2020/10/06	3,4,5	30
3	Landsat OLI TIRS	8 204/051	2020/11/20	3,4,5	30
4	Landsat OLI TIRS	8 204/050	2020/10/23	3,4,5	30

**Appendix 5.** Permission letter issued by authority to confirm his status as a PhD Student



**University of The Gambia**  
**Doctoral Research Program on Climate Change and Education**  
**Farafenni Campus, North Bank Region**  
**The Gambia**

22nd December, 2020.

**TO WHOM IT MAY CONCERN**

Please assist the bearer of this letter, **Mr. Demba Baldeh** to help him with information pertaining to his data collection exercise for his research leading to the award of Doctorate in Climate Change and Education degree at University of The Gambia.

For further questions or clarifications, please don't hesitate to contact me. Thank you.

A handwritten signature in blue ink, appearing to read 'Syaffa'.

Professor Sidat Yaffa

Dean, School of Agriculture & Environmental Sciences

Director, UTG/WASCAL Doctoral Research Program on Climate Change and Education.

Tel: +2203650028; Email: [syaffa@utg.edu.gm](mailto:syaffa@utg.edu.gm), [ksidat@netscape.net](mailto:ksidat@netscape.net)

**Appendix 6.** Sample letter to various stakeholders engaged for the KIIs



Demba Baldeh  
University of The Gambia  
Farafenni Campus, North Bank  
The Gambia.

3<sup>rd</sup> March 2021

The Migration Officer  
International Organization for Migration  
Serrekunda

Dear Sir,

**Data requisition for a PhD dissertation writing**

My name is Demba Baldeh, a Doctoral Research Program on Climate Change and Education student of the University of The Gambia.

I am requesting for a list of Gambia's returnees from Europe who would be able to participate in a survey I am conducting in fulfillment of my PhD dissertation writing. The topic of my research is **“The effects of climate extremes on illegal Migration of The Gambia's Youths: Case Study Central River Region, West Coast Region, Upper River Region and North Bank Region of The Gambia”**.

Sir, the information you give will be treated with utmost privacy and will be used for this study only. I wish to assure you that confidentiality is something we do not compromise at the University of The Gambia.

Your support in this endeavor is highly solicited. Thank you in advance.

Yours sincerely,

Demba Baldeh